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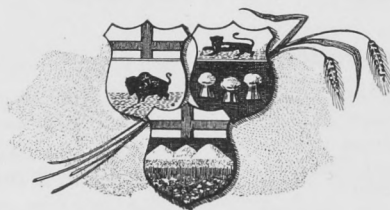
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## Obstetrics

### The Acute Toxemia of Pregnancy\*

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Professor of Obstetrics and Gynaecology  
University of Toronto

Any condition associated with pregnancy which in our country takes an annual toll of 100 maternal and 3,000 fetal lives bears re-examination. Any steps which may lead to some reduction in this tragic wastage warrant continued consideration. It is with this purpose in mind that I propose to place before you recent advances and revision of older thoughts regarding our knowledge of this topic.

#### Definition

The acute toxemia of pregnancy is an acute hypertensive disease peculiar to pregnant or puerperal women called in its non-convulsive stage pre-eclampsia and in its convulsive phase, eclampsia. The diagnosis of eclampsia is based upon the occurrence of convulsions and coma in the pregnant or puerperal woman when associated with the trial of hypertension, oedema and albuminuria<sup>1</sup>.

#### Pre-eclampsia

**Clinical Course:** This toxemia is characterized by the development of hypertension, edema and albuminuria during the last two to three months of pregnancy in gravid women who have previously been normal in these respects. This, in my opinion, is a prodromal stage of eclampsia. Recent writers have cast some doubt upon this view<sup>2, 3</sup> but in general there is little ground to support their thesis.

**Hypertension:** The earliest and most dependable sign of pre-eclampsia is a suddenly developing hypertension. A single blood pressure reading may be misleading and evidence of sustained hypertension over a period of 48 to 72 hours is required. Absolute levels are of less significance than relative increases in pressure. Increased diastolic pressures are, in my experience, of more importance than systolic elevation, any persistent diastolic pressure of or over 90 must be considered pre-eclamptic. The ratio between systolic and diastolic pressures is also significant of impending eclampsia, any patient in whom this ratio falls below 1.5 to 1 may be on the verge of eclampsia<sup>4</sup>.

**Oedema:** The next and not infrequently the first sign of pre-eclampsia is sudden and excessive

weight gain. Any gain of more than 1 pound per week or 4 pounds per month is significant. This excessive increase in weight is due almost entirely to abnormal water retention by the tissues later becoming apparent as edema of the extremities and puffiness of the eyes and fingers.

**Albuminuria:** Usually develops later than hypertension and edema and must therefore be considered of more serious moment when superimposed on the other two findings. Hypertension and albuminuria may occur without awareness on the part of the patient. It is in their early detection that pre-natal care is of extreme value. Other symptoms such as headache, epigastric pain, oliguria and visual disturbances are of later occurrence and may precede convulsions only by a very short interval.

#### Etiology

The etiology of pre-eclampsia is in my view the same as eclampsia. A vast amount of work has accumulated over the years in this respect. The theories and their proponents are legion. The cause remains unknown except that the placenta is essential to the production of the acute toxemia. It seems certain that the investigation of placental physiology and the endocrine imbalance associated with it will ultimately solve the problem. At present, however, we must consider this hypothesis as speculation and be content with a statement attributed by Benj. Atlee to Socrates—though I suspect it originated with the former—"All that I know is that I don't know." The pathologic anatomy of the condition is one of arteriolar spasm which can be demonstrated visually in most instances by ophthalmoscopic examination of the retina where the ordinary vein-artery ratio is increased. Because of the spasm in the arteries the diameter of the veins may be three times as great as that of the arteries with associated edema of the retina. The vast amount of work done upon the kidney with respect to more refined kidney function tests has shed some light on the changes brought about in this organ by arteriolar spasm. That the physiology of the kidney is still imperfectly understood does not detract from the findings of these investigators<sup>5, 6, 7</sup>, which have helped in the more rational management of the disease. Significant studies by McCall and colleagues<sup>8</sup> have shown similar changes in cerebral circulation brought about by arteriolar spasm.

**Prognosis:** The immediate outlook for the pre-eclamptic patient depends almost entirely upon whether or not eclampsia supervenes. Eastman<sup>1</sup>

\*The classification and definition of Pre-eclampsia and Eclampsia as Acute Toxemia of Pregnancy are taken directly from Eastman's new edition of William's Obstetrics.

<sup>1</sup>Presented at the University of Manitoba, Faculty of Medicine Refresher Course, Winnipeg, 1951.

found that adequate prenatal care reduced the incidence of eclampsia from 3.8% to 0.4% in clinic patients at Johns Hopkins Hospital. The immediate death rate from pre-eclampsia is practically nil, 0.2%<sup>1</sup> whereas that from eclampsia is 10 to 15%. The infant loss depends largely upon the severity of the condition and the stage of pregnancy when it occurs. The more severe and earlier its occurrence, the greater the fetal loss.<sup>1, 9, 10</sup>

**Late Prognosis:** The ultimate prognosis for the majority of patients with this condition is good. There is an incidence of 25 to 65% of patients who show residual hypertension, with or without impaired kidney function, depending upon the severity of the disease, and its duration, prior to the termination of pregnancy. Considerable controversy exists with regard to residual hypertension and kidney damage with Eastman<sup>1</sup>, Chesley<sup>11</sup> and others<sup>12, 13</sup> supporting its existence, while Dieckman<sup>3</sup>, Bryans and Torpin<sup>14</sup> have been unable to substantiate these findings.

#### Treatment

The successful management of pre-eclampsia implies the achievement of the following objectives:

1. The prevention of convulsion.
2. The prevention of residual hypertensive cardio-renal complications.
3. The delivery of a living child which survives.
4. The accomplishment of these objectives with the minimum of trauma to the mother.

The attainment of these aims is difficult in all cases of pre-eclampsia. It is my belief that the best results may be obtained only by precise management.

#### Prophylaxis

Sound careful prenatal care should, and I think will, achieve these ends. It may be true as Dieckman states<sup>3</sup> that we cannot prevent pre-eclampsia. We can, however, minimize its sequelae. As salt and water retention are concomitants of the last trimester of pregnancy, salt ingestion should be limited in the last 4 months. Careful restriction on weight gain with the objective of keeping it between 15 and 20 pounds for the whole duration of pregnancy is desirable, if not essential. The early recognition and prompt treatment of the condition will improve our results. If, in spite of strict prenatal supervision, pre-eclampsia becomes established, patients should be hospitalized. Complete bed rest, salt-free diet, fluids sufficient to maintain an output of 2000 cc. urine and provide for the insensible loss of water in perspiration, etc., should be given, 2500 cc. in 24 hours is usually adequate. In order to achieve the best results it is recommended that this be given in hourly amounts of 150 to 200 cc. rather than by ingestion of larger amounts at irregular intervals. It has been shown that the kidney's capacity to excrete water and

salt is greater if fluids are ingested frequently in small quantities, rather than at long intervals in greater amounts. Adequate sedation, preferably with phenobarbital in  $\frac{1}{2}$  grain doses four times daily is important. The use of magnesium sulphate and veratrine has been advocated to reduce the danger of convulsions in fulminating cases as a preliminary to induction of labour. If oliguria becomes evident hypertonic glucose solution in distilled water is useful. Bidaily blood pressure readings, recorded intake and output, quantitative albumin estimations and daily weighings are measures of a patient's progress. Should the condition worsen under treatment, termination of pregnancy is imperative. Methods of termination will depend upon the stage of pregnancy, the ripeness of the cervix for induction and the gravity of the patient's condition. Caesarean section should be employed where the necessary prerequisites for vaginal delivery do not exist.

#### Eclampsia

Eclampsia has been previously defined—"the word means flash or shining forth, and is indicative of the fulminating character of the disease."<sup>1</sup> Controversy exists as to whether this is a late manifestation of pre-eclampsia in all instances, as evidence may be lacking in some cases. Careful investigation of these exceptions, however, will usually result in the detection of signs or symptoms which were missed or neglected by the attendant physician. The incidence of the condition is decreasing. On this continent it is most prevalent where medical care and the standard of living are poorest. At the Toronto General Hospital in the past 16 years, eclampsia occurred on 94 occasions in 42,968 patients or 2.2 per 1,000. These were divided as follows:

Clinic public ward patients: 11 or 1 per 1,000 patients. Non-clinic ward patients: 48 or 15.4 per 1,000 patients. Private patients: 16 or .78 per 1,000, semi-public, 19 or 2.2 per 1,000.

The disorder may make its appearance antepartum, intrapartum or postpartum. It occurs with greatest frequency in the late winter months reaching its maximum in March or April. Its occurrence has been noted in connection with hydatidiform mole and chorio-epithelioma, indeed it is thought to be more frequent and severe in these instances than in normal pregnancy<sup>15</sup>.

#### Clinical Course

Premonitory symptoms such as severe headache, blurring of vision and epigastric pain usually precede the convulsion. Typically the seizure begins about the mouth and then extends to the whole body. A series of major convulsions with tonic and clonic movements are followed by cessation of breathing until the woman appears dead from respiratory arrest. Coma persists for variable periods, in mild cases the patient recovers



consciousness in a relatively short time, in severe cases coma may be prolonged, with repeated convulsions and death occurs from pulmonary edema, apoplexy, pneumonia or liver damage.

### Pathological Anatomy

The post-mortem findings in eclampsia have been described in detail so frequently that it is not pertinent to repeat them to this group. Suffice to say that periportal hepatic necrosis, narrowing of glomerular capillaries with accompanying increased thickness in the basement membrane, placental infarction, cerebral and pulmonary oedema, are the most outstanding features. It is relevant, however, to point out that some authors do not agree that these findings are specifically due to eclampsia. Serial epileptiform seizures, from any cause, may result in cerebral and pulmonary oedema.

### Prognosis

The immediate prognosis is always serious—maternal mortality is variously reported from 10 to 20% while the fetal mortality approaches 50%. The outlook seems graver in multipara than primipara. Decreased urinary output is the gravest prognostic sign in any individual case but others of almost equal importance are, prolonged coma, pulse in excess of 120, high fever, frequent convulsions, markedly elevated blood pressure 200+, and excessive albuminuria. The late prognosis varies with different authors reporting from 25 to 45% of patients suffering from persistent cardiovascular renal disease and a definitely shortened life expectancy somewhat similar to those with pre-eclampsia. The differences of opinion in this regard are largely academic, for from the viewpoint of the management of individual cases it is generally agreed that the prognosis is improved by shortening the duration of the toxæmic process.

### Treatment

It is worthwhile reiterating that the best treatment of eclampsia is its prevention. This can be obtained by adequate prenatal care in a not inconsiderable proportion of cases, though anyone who claims that it can **always** be prevented by such care is more enthusiastic than realistic.

The general treatment should consist of constant nursing care in a quiet, darkened room free from extraneous stimuli. Mouth gags and sideboards are essential to prevent self injury. Equipment for aspiration of the airway and administration of oxygen should be available in the room. Specifically the aims of therapy are directed toward:

1. The control of convulsions.
2. The maintenance of an unobstructed airway.
3. The management of coma.
4. The decrease of vasospasm.

5. The promotion of diuresis.

6. The correction of haemoconcentration.

Methods of controlling convulsions are numerous and each clinic has adopted procedures which they consider most satisfactory in their own hands.

The present management at the Toronto General hospital rests upon the use of the routine outlined below:

Patients admitted in convulsions.

(a) Under chloroform anaesthesia 20-80 drops. Proceed as follows:

(b) Sod. Amytal grs. viiss intravenously. Blood taken for  $\text{CO}_2\text{cp.}$ , N.P.N., Uric acid.

(c) Pantopon grs. 1/3 subcutaneously (if no easily obtainable veins, increase pantopon as substitute for Sod. Amytal).

1 hour later

(a) If restless pantopon grs. 1/3 (under chloroform as above if necessary).

(b) And at same time, Sod. Luminal grs. ii intramuscularly.

3 hours later

Pantopon grs. 1/3.

7 hours later

Sod. Luminal grs. ii. intramuscularly (under chloroform as above if necessary).

13 hours later.

Sod. Luminal grs. ii. intramuscularly (without chloroform if there have been no fits for 8 hours).

21 hours later

Sod. Luminal grs. ii intramuscularly (without chloroform as above).

After a period of 8 hours without convulsions consider induction. Method of induction to be based on the particular case in hand, considering stage of pregnancy, parity and age of patient, etc.

This has been modified in practice to exclude morphine or morphine derivatives except in rare instances where restlessness has not been satisfactorily controlled by sodium luminal. The use of this routine has proved very satisfactory in our clinic since its introduction approximately 4 years ago. No maternal death from eclampsia has occurred since its inception. Prior to this our overall mortality rate in eclampsia was 12%.

Numerous alternative measures have been recently reported in different centres, briefly these include the use of (1) sodium pentothal intravenously as on infusion, 3 gms. to 1 litre of 10% dextrose in distilled water, together with adjuvant therapy in the form of calcium gluconate, Vitamins B. A. and D as advocated by O'Donel Browne<sup>16</sup> at Rotunda. He reports a marked reduction in mortality in this manner in a small series, the latter part of which has been without a death.

2. Veratrone—The best reports on the use of this drug which theoretically has the greatest appeal, have come from Cincinnati. There, Bryant in 1940 reported on 186 cases with an uncorrected maternal mortality of 1.6, and a corrected rate of

0.54.<sup>17</sup> Similar, but not quite so satisfactory results were reported by Green<sup>18</sup> and Irving<sup>19</sup>. The results so obtained were not achieved alone by veratrone as magnesium sulphate was also used and it is therefore difficult to evaluate the virtues of veratrone per se. Nevertheless, this treatment requires further intensive study as it suggests a sound theoretical and clinical approach to the problem.

3. The use of paravertebral block, caudal and spinal anaesthesia has been reported by various authors<sup>20</sup> as a satisfactory answer to angiospasm. The number of cases so treated is inadequate to properly assess the value of these methods of therapy.

4. Magnesium sulphate used alone or in conjunction with other methods aids in the inhibition of vasospasm and enhances sedation. It is a well-tried method of therapy and is useful in supplementing other treatments.

It should be pointed out that these latter procedures<sup>1, 2, 3</sup> and <sup>4</sup> act by reducing vasospasm and thus increasing diuresis.

In respect to diuresis and correction of haemoconcentration, the use of glucose in distilled water, either concentrated or in the form of 5% dextrose is advocated in amounts sufficient to correct these imbalances. It is important to note that the capacity of the circulation for absorption of fluid is decreased in eclampsia<sup>3, 21, 22</sup> and overtreatment may well cause death from pulmonary edema. In view of this, intravenous fluid intake should be limited to 1500 to 2000 cc. in 24 hours or the urinary output together with the insensible loss from perspiration, etc.

### Delivery

In this respect all clinics are agreed that no interference should be considered until convulsions have been absent for 24 to 48 hours. The problem then presented is one of severe pre-eclampsia and labour should be induced by rupture of the membranes if the cervix is suitable and no other obstetrical contra-indication is present. In those where satisfactory conditions are not present, delivery should be accomplished by Caesarean section, under spinal or local anaesthesia. It is of interest to note that the method of delivery has little, if anything, to do with fetal survival<sup>23</sup>. In general, it is our feeling, that the second stage should be shortened by the use of forceps. Post-partum treatment should be that of pre-eclampsia and be persisted in until all evidence of albuminuria has disappeared.

### Summary

The management of pre-eclampsia should be directed primarily toward the avoidance of eclampsia. Other considerations, however, of paramount importance are the delivery of a living child who survives. In this regard it is now well recog-

nized<sup>9, 23</sup> that delay in delivery beyond the 34th week does not improve the prospect of infant survival. In consequence then, we may state, that if pre-eclampsia does not respond to treatment within a reasonably short time, the maximum being 3 weeks, pregnancy should be terminated. As a corollary to this, in patients beyond the 34th week, with moderate to severe disorders, treatment should not be persisted in beyond 1 to 2 weeks without marked improvement.

From the viewpoint of maternal prognosis the severity and duration of the disease, and the height weight ratio seem of importance in the ultimate outlook for the mother. As these findings are significant and as the foetal survival is not enhanced by prolongation of therapy past the 34th week, there is no conflict in management in the interests of both parties. The treatment of choice in termination of pregnancy depends upon obstetrical conditions in the individual case. It should be remembered that prolonged labour is hazardous for all infants, and this is particularly true of those born of toxemic pregnancies. As a consequence unless vaginal delivery promises a reasonably rapid and uncomplicated course, section should be elected.

In eclampsia the primary effort should be directed toward the control of convulsions, decrease in vasospasm, increase in diuresis and decrease in haemoconcentration. Overtreatment should be avoided as the decreased capacity of the blood stream may result in pulmonary edema and death. No interference should be attempted to hasten the onset of labour or delivery until convulsions have been controlled.

### Conclusions

1. Pre-eclampsia cannot be prevented but its end result—eclampsia, can be reduced by adequate prenatal care.
2. We feel that we have improved our results with our present management of eclampsia.
3. Further progress in acute toxemia awaits the elucidation of its etiology and the evolution of a satisfactory method of prevention and cure.

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## Vaginal Delivery Following Caesarean Section

Ross Mitchell, M.D.

Sooner or later every obstetrician is confronted with the problem of how best to deliver a patient who has had a previous caesarean section. With the increasing incidence of the operation the problem arises more often. For some the choice is easy. "Once a caesarean always a caesarean" is the dictum they follow. Couvelaire laid down this doctrine and its modern prophets are Dieckman of Chicago and Bill of Cleveland. There are others who do not accept it. Their argument runs as follows:

1. Subsequent vaginal delivery may be safer for both mother and child.

2. It permits the mother to have the experience, sometimes joyous, of delivering a child in the natural way.

3. Vaginal delivery is less expensive as a rule than delivery by a major abdominal operation. Other things being equal, the doctor should have respect to the patient's pocketbook.

The problem is never a simple one and many factors must be taken into account and carefully assessed before a decision can be reached.

Schmitz and Baba (A.J.O.G., April, 1949), lay down the following pre-requisites for vaginal delivery following a caesarean section:

1. Early engagement of presenting part which facilitates evaluation of the state of the cervix especially during labor.

2. History of vaginal delivery preceding the section, the larger number of vaginal deliveries preceding the section the easier and shorter the expected labor.

3. Diagnosis of death of the fetus or monstrosity in utero.

4. Reasonable assurance of a well-healed scar.

5. Absence of the original indication for the section.

6. Competent obstetric supervision in a hospital well equipped to meet all emergencies.

The reasons advanced by those who favor invariable repetition of the caesarean section operation are:

1. The danger of rupture of the uterine scar.

2. The increasing safety of caesarean section with the low transperitoneal operation and the availability of blood transfusions and antibiotics.

As to the frequency of rupture of the uterine scar Eardley Holland (Jour. Obst. & Gyn. Brit. Empire), in 1920 found the frequency to be 4% but in 1946 Duckering of Cornell University (Am. J.O. & G., May, 1946), in a series of 455 viable pregnancies following previous caesarean section found rupture of the scar occurred in 1.7 per cent. In Duckering's series there were no maternal deaths, which happy result he attributed to prompt action. Schmitz-Baba (Chicago), state that the mortality following rupture of the caesarean scar is estimated to be 10 to 15 per cent, and that the danger of rupture is always present. Rupture of the scar is influenced by the type of operation, whether classical or low, the presence or absence of infection following the operation, the distension of the uterus in a subsequent pregnancy, the nutrition of the patient and the position of the placenta. It is the general belief that incision through the contractile part of the uterus is more likely to produce a weak scar because the contractions interfere with healing and because the uterine sutures must serve not only to coapt surfaces, but be tight enough to arrest bleeding. A stormy convalescence generally indicates infection and an anaemic poorly nourished woman is less apt to have a good scar. A placenta implanted in a subsequent pregnancy on the scar may weaken it. On the other hand, the strength of a well-healed scar may be even greater than that of normal tissue.

The proponents of allowing vaginal delivery after a caesarean operation point out that in spite of modern advances there is still with the caesarean section an inherent risk to both mother and baby. Acken (A.J.O. & G., June, 1942), states that in 1,066 sections between 1920 and 1938 in the Methodist Hospital, New York, the maternal mortality was 3.18% while in 768 sections done from 1936 to 1946 that maternal mortality was 0.65%. Despite this reduction of risk to the mother, the foetal mortality had been reduced only by a degree and stood at 4.9%. Several writers have called attention to unexplainable deaths in children at term following caesarean section, possibly because of the more rapidly delivery of the child and because amniotic fluid is not squeezed out of the lungs. Dr. R. A. Cosgrove of the Margaret Hague Memorial Hospital, New York, favors vaginal delivery after previous caesarean.

When a patient who has had a caesarean section presents herself at a doctor's office in a subsequent pregnancy, the doctor should ascertain, if he does not already possess the information, the indication for the operation, the birth weight of the baby, and the course of the puerperium. A full blood count should be made and the haemoglobin should be kept at a proper level throughout the pregnancy. She should be given a diet list designed to give optimum nutrition for herself and her unborn



child. Such a diet will be high in proteins and low in calories. As she approaches term the presentation and position of the fetus should be determined, an estimate made of its weight, and the possibility of plural pregnancy or fetal abnormality, with or without polyhydramnios must be considered. The presence or absence of the Rh factor should be known, also the blood grouping. X-ray pictures may be helpful, and, in some cases, imperative. The situation should be discussed with the patient and her husband.

She should be instructed to report at once any bleeding from the vagina, rupture of the membranes, abdominal pain and tumultuous movements of the fetus. As soon as there is any sign of labor, she should be admitted to a well-equipped hospital. In a doubtful case the patient should be in hospital for two or three days before the expected date of labor. In many instances a trial of labor is required before the obstetrician can reach a decision as to the method of delivery. Consultation is advisable in every case, if possible. If the decision is in favor of vaginal delivery, the second stage should not be prolonged, low forceps being used when indicated.

A plea may be made here for the necessity of keeping accurate records, especially of caesarean operations, and of making these records available between hospitals and doctors.

The indication for the previous operation must be known. The most common indication, that of cephalo-pelvic disproportion, will probably persist in subsequent pregnancies, but occasionally it will be possible for a smaller child, especially if in a more favorable position, to be delivered per vaginam. Other indications such as placenta praevia, toxemia and faulty presentations may be absent in succeeding pregnancies. Such cases are, for that reason, more suitable for vaginal delivery.

In a personal series of 267 caesareans between 1920 and 1951, 11 women have had subsequent vaginal deliveries resulting in the delivery of 17 children without maternal or fetal mortality. The record of these cases follows:

1. Mrs. S. G., para 0, grav 1: (1) Classical section after consultation Aug. 9, 1929, prolonged labor without progress, frank breech, F 10 lbs. (2) Mid-forceps del. June 12, 1932, M. 8-0¾.

2. Mrs. J. R.; (1) Dead fetus, hydrocephalus, F. 5-1 at term, delivered by internal version (face presentation) March 15, 1941. (2) Caesarean for placenta praevia, 3 weeks before term, twins (both died shortly after delivery) March 29, 1942. (3) Low forceps, 11 days after term. F. 9-10, Aug. 22, 1945. (4) Natural delivery M. 9-6, Oct. 19, 1946. (5) Expected date July 8, 1951.

3. Mrs. M. E. B. (Mother and sister lost their first babies. (1) Abortion. (2) Low caesarean, Nov. 6, 1935. R.O.P. after 21 hours labor, M. 7-12½. (3) Caesarean of election advised, but mother re-

quested trial of labor. Natural delivery July 21, 1939, F. 1-2¼. (4) Low caesarean March 27, 1944. Sterilized.

4. Mrs. E. H. F.: (1) Low section after consultation April 4, 1932. F. 11 lbs. 2 oz. (hydrocephalus). No x-ray taken. (2) Natural delivery July 19, 1933, M. 8-0. (3) Natural delivery May 30, 1935, M. (4) Natural delivery Nov. 10, 1937, M. 8-6.

5. Mrs. E. C. W.: (1) Classical caesarean Nov. 20, 1930. Prolonged labor over 36 hours, consultation. M. 9-6. (2) Low forceps delivery, May 22, 1935, M. 8-12.

6. Mrs. W. O. J.: (1) Classical section July 16, 1931, 21 days after term, prolonged labor, consultation, M. 9-10. (2) Prolonged labor R.O.P., internal version (membranes unruptured) at term, May 26, 1933, M. 8-3. (3) Natural delivery, Nov. 17, 1934, prolonged labor. F. 7-14.

7. Mrs. G. McM.: (1) Prolonged labor (4 days), stillbirth, Aug. 7, 1942 (not under my care). (2) First seen in November, 1942, husband overseas, she was depressed, anaemic, had cervicitis. Husband returned 1946: E.D. April 23, 1947, labor began May 6, R.O.P., trial labor, low caesarean May 7, 1947, M. 7-2. (3) Natural delivery L.O.A., April 21, 1948, M. 7-14. Pomeroy sterilization April 23, 1948.

8. Mrs. J. C. R.: (1) Membranes ruptured Sept. 21, no progress, X-ray showed hydrocephalus and spina bifida. Low section Sept. 23, 1941. F. 9-4. (2) Low forceps, June 24, 1946. M. 9-8.

9. Mrs. N. H. D.: (1) E.D. March 27, 1943. Diagnosis of huge ovarian cyst, toxemia. Low caesarean Feb. 22, 1943. F. 5-14. Tumor removed July 5, 1943, dysgerminoma. (2) Low forceps, Dec. 13, 1944, M. (3) Moved west, delivered at Calgary General Hospital, July 12, 1946. (4) Aborted October, 1947, placenta retained. Operation, Calgary General Hospital, Dec. 22, 1947, died Dec. 30, 1947.

10. Mrs. P. M. S.: (1) Natural delivery (not under my care). (2) E.D. Jan. 8, 1941, bleeding from placenta praevia. Low section Dec. 6, 1940, F. 5-4. (3) Natural delivery, May 18, 1947, F. 5-8. (4) Natural delivery, Jan. 13, 1951, F. 6-1.

11. Mrs. J. R. R.: (1) Frank breech, trial labor, no progress, consultation, low caesarean, Feb. 15, 1943, F. 7-8. (2) Low forceps, L.O.A. May 6, 1945, M. 7-3.

12. One other case may be mentioned, Mrs. S. Z. (21 years). Seen first on April 14, 1937. Expected date April 22, 1937. History of very slight bleeding in November, 1936. Fundus 10 cm. above symphysis. Diagnosis of missed abortion, confirmed by negative Friedmann test. Abdominal hysterectomy after consultation April 23, 1937. Sac 3½ x 2¾ removed, uterus closed in layers (classical). (2) Difficult forceps delivery, July 15, 1938, F. 10-2. (3) Natural delivery, July 3, 1940, M. 8-9. (4) Outlet forceps, Jan. 21, 1943, F. 9-0.



The decision to try for delivery per vaginam following a caesarean section demands courage on the part of the patient and doctor. The strength of the scar is always an unknown factor. Cases are on record in which there have been one or two deliveries by the natural passages after a caesarean only to have the uterus rupture, sometimes with fatal results in a subsequent labor. Every patient who has had a previous section must be warned to report at once any sudden abdominal pain and/or bleeding. She should be admitted as soon

as labor begins, to a hospital where major surgery can be done and where an adequate supply of blood, other fluids and antibiotics are at hand. The obstetrician should be ready to take appropriate action at very short notice. In such circumstances, but only in such circumstances, may one undertake the risk of vaginal delivery after a caesarean section.

My personal feeling is that the dictum should be changed to "Once a caesarean not necessarily a caesarean."

## Cancer

### Carcinoma of Female Breast Case Report With Discussion

**Case No. A-7883:** A 77-year-old white female, was first admitted to hospital in May, 1950. She had a right sided hemiparesis present for one year, and admission to hospital was due to the flood emergency and not for medical reasons. Examination showed a large ulcerating tumor occupying the upper, outer quadrant of the right breast. This measured 10 x 4 cm. Tumor mass was mobile and not attached to muscle. No lymph nodes were palpable. Patient refused all treatment.

In October, 1950, the patient was re-admitted with a pathological fracture of her right femur. Breast tumor was now larger and fixed. The patient died several days later.

Patient gave the history, that a tumor had been noted in this breast 10 years previously. It gradually increased in size and finally ulcerated. No medical aid was sought.

#### Pertinent Autopsy Findings

Large 12 x 4 x 3 cm ulcerating mammary carcinoma of right breast invading the pectoral fascia. Tumor was metastatic to a few small right axillary nodes, mediastinal nodes and both lungs. The histologic structure of the tumor was an infiltrating duct carcinoma grade 2 (scirrhous carcinoma). A small clear cell renal carcinoma (hypernephroma) was present in the left kidney.

#### Discussion

Breast carcinoma is the commonest cause of death in the female in the Province of Manitoba. No age is excluded but it is exceedingly rare before the age of 15, and relatively rare before the age of 25, with the peak incidence between 40-60 years. The average duration of survival without treatment is 40 months, 20% surviving 5 years, and 5% surviving 10 years or more. Realization of this is important in evaluating any form of treatment. The type of tumor has an important bearing on the survival period. The so-called bulky mammary type (encephaloid or medullary type) have the longest survival. Colloid carcinoma also have a longer natural history than the infiltrating duct

carcinoma (scirrhous).

**Diagnosis**—is readily made. Any woman over the age of 35 with a discrete lump in her breast should be suspected of carcinoma until disproven by excision. A discrete mass in a woman over the age of 60 makes the diagnosis of cancer almost a certainty.

#### Treatment

The standard treatment of operable mammary carcinoma is still a radical mastectomy with or without radiation. Completeness of axillary dissection is of greatest importance since the cure rate in cases with axillary involvement is proportional to the total number of nodes removed, i.e., thoroughness of axillary dissection.

#### Delays

The above patient apparently never sought medical aid. However, it is very important to remember that in several papers analyzing the cause of delay, the Doctor was found to be more culpable than the patient. No tumor of the breast can be ignored.

#### Should Age Ever be a Detering Factor in Treatment?

The often expressed statement "no treatment is indicated, since the patient will die of old age before they will of the tumor," usually implies a lack of knowledge of life expectancies. A patient at the age of 77 years has a life expectancy of 7 years.

#### Location of Tumor and Survival

Inner quadrant tumors carry a much worse prognosis even if axillary nodes are negative. This is, in part at least, due to early internal mammary lymph node involvement.

#### Pre-cancerous Breast Lesions

This is a most controversial subject. Certainly the status of "Chronic cystic mastitis," as a pre-cancerous lesion, has not been satisfactorily proven. Of much greater practical importance is the fact, that a patient having had carcinoma in one breast has a much greater probability of carcinoma in the other breast (either a new primary or metastasis) than has the general population of the same age group.

D. W. P.

# Surgery

## Intestinal Obstruction\*

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Intestinal obstruction is one of the abdominal emergencies in which promptness of treatment depending on early diagnosis is an essential factor for success. Obstruction is so frequently of a dramatic nature and so often a cause of death that there is a tendency to look on it as a disease entity. However, it is only a symptom. It may be the result of a diversity of causes. Therefore, the clinical manifestations of an obstruction may vary considerably, varying with the mechanism of production, the portion of the bowel involved, as well as the complications which may develop. There is a great tendency for all of us to try to put each case of intestinal obstruction into one of three airtight compartments, i.e., simple occlusion, strangulation obstruction, and neurogenic obstruction. If each case could be put in its own "niche" life would be much simpler for the surgeon called to care for the acute abdomen. However, it becomes increasingly clear as the years go by that no clean dividing line can be drawn between the varieties of intestinal obstruction and that many cases may exhibit all three types in varying degree. For example, in the case of band obstruction, there may be a simple obstruction proximal to the band, strangulation at the actual site of the band, if the pressure is prolonged, and after a long period of simple obstruction in the proximal loop, neurogenic obstruction may supervene. In any discussion of intestinal obstruction, we have to classify the various types and no classification seems to be the final answer. However, Wangenstein's classification based on the mechanism producing the obstruction is probably one of the best. This is divided into three main types as is seen in Figure 1.

It is difficult to estimate the actual incidence of various forms of intestinal obstruction because there may be a preponderance of one type or other in each hospital reporting. However, McIver's report from the Massachusetts General Hospital gives a good cross-section of the average large general hospital as is evidenced by Figure 2.

When attempting to discuss the physiological alterations accompanying intestinal obstruction they may best be discussed under five headings. These are outlined in Figure 3.

The effects of obstruction are first Local, that is, on the bowel wall itself and second General, upon the body as a whole and these effects depend on a number of things; first, the level of the bowel at

Figure 1

- I. Mechanical obstruction.
  - A. Narrowing of the lumen
    1. Strictures
      - a. Congenital
        - atresias
        - imperforations
        - inflammatory
        - traumatic
        - vascular
        - neoplastic
      - b. Acquired
    2. Obturation
      - gallstones
      - fecoliths
      - foreign bodies
      - worms
    3. Compression from without
  - B. Obstruction from adhesions or bands
    - congenital
    - inflammatory
    - traumatic
    - neoplastic
  - C. Hernia
    - external
    - internal
  - D. Volvulus
  - E. Intussusception
  - F. Developmental errors
- II. Obstructions due to nervous imbalance
  - inhibition ileus
  - spastic ileus
- III. Vascular obstruction
  - thrombosis
  - embolism

Figure 2

McIver reported 335 cases of mechanical obstructions seen at the Massachusetts General Hospital.

Strangulated external hernia	44%
Bands and adhesions	30%
Neoplasm	10%
Intussusception	5%
Volvulus	4%
Mesenteric thrombosis	3%
Other causes	4%

Figure 3

1. Local and systemic effects of fluid and electrolyte losses.
2. The effects of distention on the functions and viability of the gut.
3. Toxic factors associated with intestinal obstruction.
4. Relation of bacterial growth to intestinal viability.
5. Problems attending compromise of blood supply of the intestines.

which the obstruction occurs; second, the degree of increase of intraluminal pressure; third, the period of time the second is maintained, and fourth, the integrity of the blood supply of the intestine.

Obstruction high in the small intestine causes important changes in blood chemistry. With continued vomiting there is decrease in the chloride and sodium ions and dehydration. There is also a rise in non-protein nitrogen. Acidosis or alkalosis may also follow depending on the proportions of first, gastric juice and second, bile and pancreatic juice lost by vomiting. Chloride can be compensated for partially by an increase in bicarbonate. Sodium cannot be compensated because we get a lowered blood plasma volume and lowered volume of inter-cellular fluid with hemoconcentration. Electrolyte loss is largely responsible for striking systemic effects in high small bowel obstruction. The administration of normal salt will delay considerably the effects of high obstruction but will not prolong life appreciably in obstructions low in the small intestine.

In obstruction high in the small bowel vomiting empties the intestine above the obstruction, consequently there is no distention thus the local bowel wall changes are minimal and the harmful

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effects are those of fluid and electrolyte loss. With obstruction low in the small intestine, vomiting cannot empty the bowel completely above. We have fluid and gas accumulating in the bowel and distention becomes a marked feature. Obstruction of the colon produces a closed loop in a high percentage of cases because of the fact that the ileo-caecal valve will let ileal contents into the colon but will not allow regurgitation into the ileum. In other words, a closed loop is formed between the ileo-caecal valve and the obstructing lesion in the colon which is usually a neoplasm in the left colon.

What causes the distention of the low small bowel? We know that there is 7,000 to 8,000 cc. of fluid secreted daily, including saliva, gastric juice, bile, pancreatic and intestinal juice. We also know that there is considerable gas in this distended small bowel, about 70% of it probably originating in swallowed air.

We have pointed out the fact that fluid and electrolyte loss is responsible for the systemic effects and subsequent death in unrelieved high small bowel obstruction. We are not sure of the mechanism in low small bowel obstruction. The consensus of opinion is that lethal transperitoneal absorption of toxic bacterial products may result from mucosal damage due to vascular impairment which in turn is secondary to prolonged distention.

To consider for a moment the role of bacteria in bowel obstruction, we all know that the lower the obstruction, the greater is the distention. The greater the distention, the greater incidence of haemorrhage, necrosis and ulceration of the mucous membrane we find. It has been proven experimentally that penicillin in large doses may prevent these mucous membrane changes. Thus we can assume the distention helps bacteria to invade the gut wall and that bacterial growth may be responsible for ulceration and necrosis in these lesions.

Strangulation adds terrifically to the dangers of obstruction due primarily to the ready passage of bacteria and/or toxic material through the necrotic intestinal wall. Pure arterial obliteration is rare in humans. The usual encountered strangulation has venous occlusion as well. It is well-known to all of us that in the latter group the loss of whole blood into the bowel wall and lumen may be sufficient to cause marked shock and death.

#### Clinical Picture

In intestinal obstruction pain is usually the first most consistent and most important symptom in all except the paralytic cases. In occlusion it is crampy, colicky and central in position, occurs in waves which last for 3-5 minutes. It becomes very severe and then passes off to be followed after an interval of freedom by a return of the pain at more or less regular intervals. In simple

occlusion the onset of the pain may be more or less gradual.

In strangulated obstruction the history is of sudden onset of pain. It may go through to the back but for the most part it is diffuse and usually increasing in severity and continuous in most of these cases.

In high intestinal obstruction, pain is usually referred to the upper abdomen whereas in low obstruction the pain is more or less referred to the central or lower abdomen. In colon obstruction, the pain has usually been present for weeks or months as a mild, crampy disturbance across the lower abdomen often relieved by passing gas or a bowel movement indicating an incomplete obstructive process. However, when the obstruction becomes complete, the pain becomes more severe and is generalized in character and the intervals between colics is usually much longer than in small bowel obstruction. It is often amazing to note at operation an annular carcinoma of the low descending colon or sigmoid with no apparent lumen in which there has been no history of any difficulty whatsoever prior to the onset of the acute attack.

**Complete constipation** is the rule in all cases of complete obstruction and flatus particularly is not passed after the onset of symptoms. Just after the onset there may be one bowel movement emptying the bowel below the obstruction or a diagnostic enema may get a little stool in return at this time but no flatus.

**Vomiting** occurs early in high intestinal obstruction and may occur shortly after onset of the pain in some cases simultaneously with the onset of colic. In low small bowel obstruction it comes on later, perhaps 4-6 hours or even 8 hours after onset of symptoms. However, we occasionally see vomiting beginning 1½ hours after the first symptoms of low ileal obstruction. Colon obstruction on the other hand may not exhibit vomiting for three or four days and we all frequently see cases where there has been no vomiting on admission despite a long-standing large bowel obstruction. Vomiting comes on very early in strangulation. It is persistent, copious, with peristaltic exacerbation.

**Physical Examination:** In the general appearance of the patient there may be little alteration from the normal in the early cases of obstruction. However, as the disease progresses, the patient may present with dry tongue and lips, sunken eyes, and the parchment dry skin of dehydration. The urine is concentrated, small in amount, with little if any, chloride. These findings with the complaint of thirst and a history of vomiting are the most reliable evidence of dehydration.

**Abdomen:** In the high small bowel obstruction distention may be slight in the upper abdomen or absent. In the low small bowel obstruction it is



considerable except occasionally in gall stone ileus. Colon obstruction on the other hand exhibits peripheral distention early with superimposed central distention later as the low small bowel dilates. In any examination of the abdomen, abdominal scars should be inspected and palpated with care. We should all bear in mind that in most large series of cases of intestinal obstruction 75% approximately of the cases have an etiology of 1, band or adhesions from previous operation or 2, the obstruction is due to involvement of a hernial site.

**Palpation of the abdomen:** In simple occlusion there may be little to find in early cases. Tenderness, rebound tenderness, and spasm are of the greatest importance in making a diagnosis of strangulated obstruction. In a patient who has had an obvious simple occlusion the onset of these findings indicate compromise in the blood supply to the affected part. Tumor mass in an elderly individual in the left lower quadrant certainly would point to malignancy as the etiology of the obstruction. A sausage-shaped swelling in the right upper quadrant, left upper quadrant, or left lower quadrant in a child would certainly make us think of intussusception. Palpation may reveal the tense, tympanitic, tender balloon of volvulus.

**Auscultation:** Persistent auscultation of the abdomen with a stethoscope reveals the metallic explosions of the shifting gas or the bubbling and gurgling of mixed gas and fluid, the highest pitch of these sounds corresponding to the height of the crampy pain in obstruction, sound occurring just before the pain. In strangulation obstruction or late stages of simple occlusion auscultatory sounds may disappear with the progression of the disease. One of the diagnostic features of adynamic ileus is the absence of intestinal sounds, the "silent" abdomen.

**Pulse and Temperature:** There is little change from normal except in extensive strangulation. White blood count is elevated in strangulation but on the other hand this is not confirmatory because we frequently see a leucocytosis in an ordinary simple occlusion.

**X-ray:** There is no question of the value of the scout film of the abdomen as an aid to the diagnosis of intestinal obstruction. Under normal circumstances a scout film of the abdomen reveals gas visible perhaps in the stomach or in the large bowel. The reason for this, as Wangenstein has shown, is that the gas is mixed with fluid and travels too quickly through the small bowel for collections of gas to be demonstrated. However, when the progress of bowel content is delayed, distended gas filled loops are easily demonstrated and in simple occlusion of small bowel these tend to be centrally located, and assume more or less a transverse position in the abdomen. In high intestinal obstruction the valvulae conniventes of

the jejunum outlined by gas may simulate closely the haustrations of the colon. However, the central situation and horizontal lie serve to distinguish them in most cases. In low small bowel obstruction the loops tend to give a ladder pattern with loops of ileum, cylindrical and free from valves are readily distinguished from jejunum or colon. In large bowel obstruction the distended peripheral loops of bowel tending to be vertical in direction are usually diagnostic and the level of a colonic obstruction can be determined accurately by a scout film. The exception to this, of course, is the volvulus of the caecum or sigmoid when the enormously dilated lumen of the bowel tends to take up a central position. Approximately 2/3 of the colon obstructions present conclusive confirmatory X-ray evidence of the presence and level of obstruction. It is unnecessary for me to reiterate that barium from above must not be used in diagnosis of even a suspect obstruction. It is better to use barium through an intestinal tube such as a Miller Abbott or cantor tube using a small amount that will outline the obstruction. May I add here that barium from below may be a hazard. I have seen one case in the last year with a barium enema from below; apparently under some pressure barium passed a sigmoid obstruction and was extremely difficult to remove, even after a transverse colostomy. A careful history, a detailed physical examination, rectal examination, sigmoidoscopic examination and scout films will usually present us with evidence needed to give us the diagnosis of intestinal obstruction. It is relatively easy to diagnose a large strangulated obstruction with the usual signs of severe illness, localized tenderness, mass, fever, and leucocytosis. However, a small localized area of necrosis cannot be diagnosed with any degree of certainty.

After this general outline of the clinical picture of obstruction perhaps a few questions and answers may help to complete the diagnostic features of the syndrome:

a. Question: Is there anything characteristic in the symptoms and signs of low ileal obstruction.

Answer: Low ileal obstruction, the commonest small bowel occlusion we see, is characterized by pain usually beginning in the middle of the abdomen and is frequently accompanied by a downward urge for several hours despite defecation. After a period of hours, vomiting occurs. There may be several expectant trips to stool. Usually no flatus is ever passed once the obstruction is complete.

b. Question: How is the diagnosis of volvulus of the caecum made?

Answer: This is a catastrophic lesion. The patient has sudden onset of an extremely severe pain which is followed almost immediately with the appearance of the balloon-like tense, tender



bowel loop in the mid-abdomen. It may be situated in the right lower quadrant. Over this loop there is tenderness, rebound tenderness, and some spasm. Vomiting occurs usually quite early as in all forms of strangulation obstruction and is persistent. There is always some shock which is alleviated before operation is contemplated.

c. Question: What are the diagnostic features of intussusception?

Answer: Intussusception is most often seen in children under two years of age but may be seen at any age. The symptoms well known to you all are paroxysm of crampy abdominal pain, vomiting and the passage of blood or mucous by bowel. The mass, as mentioned previously, is usually palpable. Evidence of peritoneal irritation may not be elicited even in the presence of extensive strangulation because of the invagination of the involved bowel.

d. Question: Are there any significant features in gall stone ileus?

Answer: The female of middle age with no previous operations with intestinal obstruction should make one consider gall stone ileus in the differential diagnosis. The distention may not be as marked as other low small bowel obstructions because some of the gas escapes by the movable foreign body. Reigler of Minneapolis, claims the diagnosis can be made by X-ray in a large number of cases. The treatment, of course, is surgery after preparation of the patient: removal of the stone through a longitudinal incision with transverse closure removing the stone through a less damaged portion of bowel if possible.

e. Question: What are the diagnostic characteristics of obstruction due to endometriosis?

Answer: This cause of intestinal obstruction must be kept in mind in women between the ages of 30 and 50 with a history of acquired dysmenorrhoea, menstrual periodicity of symptoms, sterility, rectal or pelvic pain. Those are the things that must be elicited in the history. There is usually no weight loss; and there may be a long history of frequent exacerbations at the time of the menstrual period. Constipation, lower abdominal pain and distention are almost always present before the actual obstructive seizure. If the obstruction is ileal, vomiting is present. If the obstruction is in the colon, diarrhoea with blood in the stool at the time of the period may be important. On sigmoidoscopic examination there is an extra-rectal mass of puckered mucosa. X-ray examination shows a long filling defect. Treatment varies with the age and degree of disease.

f. Question: Can radiation cause intestinal obstruction? What are the characteristics of this lesion?

Answer: Usually radiation is a therapeutic measure for some form of pelvic carcinoma and the subsequent lesions seen due to the radiation are

usually found in the rectum or recto-sigmoid. The clinical picture is of crampy, abdominal pain associated with frequent liquid stools containing mucous and blood. Oedema and acute hyperemia subsides after radiation and fibrosis supervenes. The patient who has had radiation therapy and later develops abdominal pain, nausea, vomiting and change of bowel habits does not necessarily have a recurrence of the primary neoplasm but these symptoms may be on the basis of post-radiation fibrosis. Preliminary proximal diverting colostomy is a good treatment in most of these cases.

g. Question: How is the diagnosis of volvulus of the sigmoid made?

Answer: There are two types. One type is that which occurs in the younger individual which is characterized by the acute catastrophic type of syndrome which one would expect in this type of strangulated obstruction. The second type is in the older individual and these patients may go along for some period of time with crampy abdominal pain recurring at intervals before the obstruction eventually becomes complete. The X-ray is characteristic with a large balloon-like dilated loop arising out of the pelvis and assuming a central position. The insertion of a long rectal tube through a sigmoidoscope will relieve the obstruction and tide the patient over the acute episode.

h. Question: Can spasm of the bowel produce intestinal obstruction?

Answer: Spastic ileus is a diagnosis that must be made by exclusion. Colp of New York, reported 5 cases 10 years ago in which localized bowel spasm was the only cause of bowel obstruction. The history is very similar to bowel obstruction due to any other lesion but the X-ray is not usually typical of malignant obstruction in the colon and the diagnosis can only be made by surgical exploration and visualization of the spasm in the bowel.

### Treatment

It is well known that control of distention by constant suction, intestinal intubation, in the absence of strangulation, often will by itself effect release of the obstructing mechanism. All of us, however, have seen the strangulating lesion which was not diagnosed pre-operatively and which in retrospect presented no evidence which might have suggested the presence of strangulation. This universal experience has clearly pointed to the fact that exploration is indicated in nearly all cases of small bowel obstruction.

All cases of simple small bowel occlusion seen early, that is in the first 24 hours, should be explored as soon as possible. Cases of small bowel obstruction without evidence of strangulation seen late, that is 72 hours or more after the onset of symptoms, should be treated conservatively. This

is the one instance where time spent in relieving the obstruction by tube and correcting fluid balance, hypo-proteinemia, etc., by blood and I.V. fluids, more than compensates for the delay in surgery. The response to conservative therapy in the absence of strangulation is usually satisfactory if the condition is not irreversible.

When strangulation is suspected, operation is mandatory. In this patient you will have difficulty passing the intestinal tube and the response to conservative measures is always poor.

In colon obstruction many will respond to conservative measures but if these fail decompression must be affected.

When surgical intervention is elected suction provides a valuable adjunct by partially reducing the distention pre-operatively and by preventing distention from occurring post-operatively. Experience has shown that the conditions responding to constant suction as an intestine decompression therapeutic measure are:

1. Adynamic ileus, post-operative or due to any cause.

2. Recent post-operative non-strangulating obstructions due to fibrinous adhesions.

Charles Johnson of Detroit, who has made many contributions to this field, stated recently that the only operation indicated in neurogenic or adynamic obstruction is a small incision in the abdominal wall to guide the intestinal tube through the pylorus and down into the small bowel if it won't go down any other way.

Before leaving treatment, realizing that 36% of cases are due to bands and adhesions we might ask the question, What can we do preventatively to avoid the recurrence of adhesions in the abdomen? Many things have been tried with this in mind and probably the one which has the most persistent use is that of heparin. However, this is not without a very great risk because Boys, in 1942, and Lord, in 1949, each reported patients

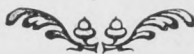
who died from the use of heparin intraperitoneally. Several observers have proved it to be a definite cause of haemorrhage in the experimental animal.

The best procedure in the treatment of recurrent obstruction due to adhesions is an operation described by Thomas B. Noble which has also been reported by Lord, called Plication of the Small Intestine. This procedure, of course, must be reserved for the occasional individual we have all seen who had some abdominal procedure, most often a ruptured appendix, at an early age and this has been followed by multiple operative attacks upon obstructive lesions. Finally the patient reports as a chronic invalid, seriously debilitated and a very serious problem. After getting these people in the best shape possible, the abdomen is explored and the bowel is completely freed, that is there is a lysis of all adhesions in the peritoneal cavity until the bowel is freed which is a long and tedious procedure. When this is completed Noble recommends plication of the small bowel in a loop 6-8 inches long from the ligament of Trites to the ileo-caecal valve. He states that this operation creates controlled, rather than uncontrolled, adhesions.

Ideal treatment should be directed to the correction of fluid and electrolyte losses, release of the obstructive mechanism by surgery and the removal of devitalized bowel with the restoration of gastro-intestinal continuity when gangrene is seen as a complication.

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## Case Histories—Surgical

### Pharyngeal Diverticulum

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F.R.C.S (C.), F.A.C.S.

*This is the fifteenth of a series of Case Histories which will appear in the Review each month. The purpose of these publications is not to present rare or unusual cases but rather to consider the routine management of common surgical cases.*

Case No. A-30139. Mr. P. K., St. Boniface Hospital. Color, white. Age, 65 years. Occupation, plumber. Date of admission, May 1, 1950. Evacuated to Misericordia Hospital during Red River Flood, May 7, 1950. Date of discharge, May 10, 1950 (from Misericordia Hospital).

#### Complaint on Admission

1. Difficulty in swallowing, 5 years.
2. Foul eructations, 4 years.
3. Noisy deglutition, 4 years.
4. Swelling in the neck, 3 years.

#### Present Illness

About 5 years ago he first noticed that occasionally, on swallowing solid foods, something stuck in his throat and caused him to choke and regurgitate some undigested food.

Recurring episodes of a similar nature would come on at unpredictable occasions. About three years ago (1943), he noticed that at irregular intervals, he would bring up undigested food which he had taken a day or two previously, and this would be followed by a short spell of vomiting. The following year (1944), there became apparent, especially at meal time and during swallowing, a peculiar noisy click followed by a gurgle. At first the grandchildren enjoyed this, but later the recurring monotony annoyed the family and himself. This became so prominent finally, that he refused to have his meals with the family or strangers.

Within the past two years he noticed that if he partook of food, the pouch filled first and only after a few swallows was he conscious of the food entering his stomach. A more important feature in his estimation, was the fact that when he attended a cocktail party, the first few swallows of liquor were parked in his pouch. Later that evening, when he felt he needed an extra drink, he would press the pouch with his thumb, and so enjoyed his refill. This he felt, was the only advantage of the pouch. The pouch increased in size and he was advised that he had an outside goitre which should be removed.

#### Inventory by Systems

Eyes—Wears glasses for reading.  
Ears—Hears well. No tinnitus, no vertigo.  
Canals clear.

Respiratory—Infrequent colds. No chest pain, cough, expectoration, haemoptosis or dyspnoea.

Cardio-vascular—No history of rheumatic fever or syphilis. No substernal pain or dependent oedema. Dyspnoea on exertion only.

Gastro-intestinal—Appetite good. Periodic gas belching and vomiting. Eructations of food ingested 24-36 hours previously. Noisy deglutition. Bowels regular. No melena or blood.

Genito-urinary—Nocturia 2x's. No haematuria, dribbling or irritating stream.

Nervous—Sleeps well, no headaches. Emotional status o.k.

Metabolic—Lost 30 pounds in 2 years. Prefers cool room.

#### Family History

Father—Died at 62, gastric carcinoma.

Mother—Alive and well, 86.

Seven brothers—Alive and well.

Five sisters—Alive and well.

#### Past History

Measles as a child. Typhoid at 22 years. No previous operations. Accident in 1930—fractured ribs and punctured lungs. Lacerations to face.

#### Physical Examination

General—Thin, aged, emaciated, grey haired man.

Eyes—Arcus senilis.

Ears, Nose, Throat—Normal.

Teeth—Upper, edentulous. Lower, pyorrhea.

Neck—No adenopathy. Thyroid not palpable. Soft, collapsible swelling palpable at middle of anterior border of left sternomastoid muscle. Pressure on swelling produces gurgling noise and reduces it in size.

Chest:

Heart—B.P. 140/80. Regular in rate and rhythm. No murmurs.

Lungs—Breath sounds normal. No adventitious sounds.

Extremities:

No deformities or varicosities.

Reflexes—All present, equal and active.

Spine—No deformities. Movements in all directions normal.

#### Clinical Laboratory

Urinalysis—Color, clear, amber. Reaction, acid. Specific gravity, 1.028. Albumin, 0. Sugar, 0. Microscopic, 2-3 pus cells.

Blood count—R.B.C., 4,670,000. Hb., 95%. C.I., 1. W.B.C., 4,600. Polys, 48. Small and large lymph, 52.

#### Oesophagus: Barium Investigation

A diverticulum about 5 cms. in diameter is noted projecting from the posterior aspect of the oeso-



phagus at the level of the 6th cervical vertebra. The diverticulum passes to the left side and the upper oesophagus deviates to the right, around it. (Dr. F. G. Stuart).

Chest X-ray—Evidence of old fractures of 6th, 7th and 8th ribs. Heart and great vessels normal. Lung fields clear.

### Pre-operative Diagnosis

Pharyngeal Diverticulum.

### Indications for Operation

Surgical interference is indicated on several grounds:

1. The presence of a pulsion diverticulum amenable to surgical correction.
2. Disabling and annoying symptoms.
3. The danger of spilling of the contents of the pouch into the lungs during a coughing spell with frequent complication of abscess formation in the lung.
4. The predilection of this site to carcinomatous changes.

### Pre-operative Care

1. Correct hypoproteinemia and avitaminosis by high calorie diet, iron and multiple vitamins.
2. Duodenal intubation with lavage. Gastroscopic attempt to empty pouch was unsuccessful: manual manipulations plus non-residue diet was successful in emptying pouch.
3. Antibiotics—Pre- and post-operatively.

### Detailed Description of Operative Technique and Operative Findings

Position and draping of the patient is the same as for a thyroid operation. A longitudinal incision along anterior border of the left sternomastoid muscle was made, extending from the level of the hyoid bone to about one inch above the sternum. The incision was deepened through platysma and deep fascia, exposing the anterior belly of the omohyoid muscle which was divided transversely. The thyroid gland and common carotid sheath was now exposed. The thyroid gland was now seized with a blunt tenaculum and gently pulled over to the middle. The middle thyroid vein running to interval jugular vein was clamped, cut and ligated. The wound was further deepened by retracting the thyroid medially and carotid sheath laterally, and the partially filled sac of the diverticulum descending along the oesophagus could easily be seen with the inferior thyroid artery crossing in front of the neck of the sac. This artery was doubly ligated and cut immediately furnishing excellent exposure. The fundus of the sac was only loosely attached to the oesophagus and was easily separated from it by blunt dissection. The fundus was then seized with blunt Babcock forceps, and with gentle upward traction on the sac, a line of cleavage was gently dissected out between the fundus and the

lateral and posterior wall of the oesophagus. The sac was now hanging fairly freely, except at the inferior angle of the neck of the sac. These muscle fibres were gently incised encircling the neck until the white submucosa of the sac became clearly visible.

At this point the anaesthetist attempted to pass an oesophagoscope into the diverticulum for identification, but was unsuccessful. An oesophagoscope was therefore passed into the oesophagus and by palpation of the scope in the oesophagus, the origin of the neck of the sac could be clearly defined. Moist sponges were now packed into the wound to prevent contamination. Two fine haemostats were now placed on the neck of the sac about 1 cm. from the pharynx and the neck sectioned between the haemostats. Phenol and alcohol were applied to the stump. The neck of the sac was about 1½ cms. wide and was therefore closed by an inversion suture over the haemostat—much the same as closing a duodenal stump. The muscular defect in the pharyngeal wall was now closed with several interrupted silk sutures. Two million units of penicillin were placed into the wound, the incision closed in layers, with chromic catgut 00, the skin closed with clips and a small Penrose drain was placed in the lower angle of the wound. The usual collar thyroid dressing was applied.

### Anaesthetic

Pre-medication: Tuinal grs. iii h.s. Morphine gr. ¼ and atropine 1/150 one hour pre-operatively.

Condition of patient—T. 98°F. Pulse, 70. B. P. 140/80.

Unfavorable Features: Long, prominent, loose teeth, made oesophagoscopy somewhat difficult.

Agents—Pentothal, 2½%—15 cc. plus nitrous oxide and oxygen. Nasotracheal.

Stimulants—Dextrose with 1 gm. procaine in 1000 cc. saline.

Post-operative condition: Excellent.

### Gross and Microscopic Description of Tissues Removed

Pharyngeal diverticulum about 2 inches long.

Microscopic—Lined with thick layer of atrophied squamous epithelium.

### Final Diagnosis

Pharyngeal diverticulum.

### Progress Notes Including Post-operative Care During Stay in Hospital

May 3, 1950—Condition good. Pulse, 64 T. 99°F. Continuous duodenal intubation. Parenamine 1-000 cc. with vit. B, C, and K. Streptomycin, ½ gm. O.H. vi. Penicillin, 400 m. daily. Propped up in bed.

May 4, 1950—Laryngeal irritation—sedative and steam inhalation. Emesis, 350 ccs. Perspiring freely. Parenamine, 1000 cc. Glucose and water,



2000 ccs. Difficulty in swallowing. Expecterating small amounts of thick, dark brown mucus. Out put satisfactory. Condition favorable.

May 5, 1940—Dressing changed; considerable serous discharge. Feeding Graham diet through Levine tube. Frequent mouth washes. Adrenalin spray for throat.

May 6, 1950—Takes feeding well through gastric tube. Up out of bed.

May 7, 1950—Emergency transfer to Misericordia hospital during Red River Flood. Gastric

tube originally ordered retained for at least 10 days was accidentally removed during transfer on the 4th day and not replaced.

May 9, 1950—Penrose drain removed. Wound well healed. Up and around freely. Takes semi-solid foods comfortably.

May 10, 1950—Discharged from hospital prematurely due to flood conditions at home.

February, 1951—Feels good. Gained 18 pounds weight. No complaints except that he misses pouch at cocktail parties.

## Medicine

### The Management of Bright's Disease\*

S. Vaisrub, M.D., M.R.C.P. (Lond.)

In order to treat a disease satisfactorily along rational lines, it is advantageous to know its pathophysiology, and natural history. Of the two pre-requisites the latter is, as a rule, better known than the former, for clinical medicine has preceded pathology and physiology by many centuries, and classic descriptions of disease existed long before basic sciences came into being. Yet, curiously enough, the very opposite obtains in the case of Bright's Disease, for here it is the clinicians, who are lagging behind, inasmuch as they have failed to observe and record sufficient numbers of cases over prolonged periods of time. True, Ellis has published in 1942 an analysis of 600 cases observed over a period of 20 years, Dawson and Platt reviewed 180 cases, Barnes et al—208, and the odd smaller series finds its way into print now and again. But, on the whole, the numbers are inadequate, and many more will be needed to build a firm foundation for the correlation of pathologic entities with clinical patterns of disease. Lacking the advantages of this perfect correlation and beset by conflicting concepts, and confusing terminologies, the physician, in search of simplicity, and guiding rules, is well advised to think not in terms of names or currently accepted headings, but in those of clinical pictures as they unfold themselves before his eyes.

The first clinical picture is that of a child or young adult with the presenting symptoms of gross hematuria and listlessness. On direct questioning of the patient or his parents there will be invariably obtained a history of an upper respiratory infection, usually sore throat, which has preceded the onset of the symptoms, complained of, by 1-3 weeks. On examination there may be found the additional clinical features of slight edema, elevated blood pressure, anemia, tachycardia, and diminished urinary output. In the average mild

uncomplicated case, however, most of the above features may be absent. Urinalysis will reveal in all cases blood, albumin and casts.

This description at once evokes the memory of many names: Acute diffuse glomerulonephritis (Volhard & Fahr.), First stage nephritis (Boyd), Type 1 nephritis (Ellis), etc. . . . The label, however, does not matter very much from the point of view of therapy.

The first step in management of disease is evaluation of prognosis, for the parents or the patient must be given some idea with regard to the immediate and ultimate outlook. In the case described above the physician's attitude should be that of guarded optimism. The patient or his parents may be told that the chances for complete recovery are good, as indeed they are. In the series published by Ellis, 82% recovered without any sequelae, recurrences or progression to a chronic stage. Only 4% died during the acute phase, another 4% died within 6-12 months, and only 10% passed through a "latent," asymptomatic, "albuminuric" phase, to terminate after some years, or even decades in renal failure. Even more optimistic are the figures given by Mitchell Rubin (97% recovery, 1% deaths in acute stage, 2% progression to chronic stage). Thus there are ample grounds for hopefulness, even though the outcome in any individual case is unpredictable.

Having reassured the patient and family, and thus contributed toward creation of a more cheerful atmosphere, the physician sets about instituting some important general measures. First, bed rest is prescribed, not only for the duration of the symptoms, but until the sedimentation rate and urinalysis become normal. Since this may take 6-14 weeks, tactful handling will often be required.

Attention is next turned to the diet. The latter should consist of an apple, or sweetened drinks during the acute phase, i.e., the first few days, to be followed by a soft, and subsequently regular diet, as the acute phase subsides. Biscuits, butter and milk are gradually added until a high calorie, low protein diet is attained. Some authorities set

\*Presented at the University of Manitoba, Faculty of Medicine Refresher Course, Winnipeg, 1951.

the maximum daily ration of protein at 20 grms. It would seem, however, that in the average case, where the blood urea nitrogen is not elevated, it is best not to restrict the protein below the body requirements, i.e.,  $\frac{1}{2}$  gram/Kilo. Salt should be limited, but absolute curtailment, i.e., a salt free diet is unnecessary. A salt poor diet, i.e., one to which no additional salt is added to that used in cooking, is more palatable and satisfactory. With regard to fluid intake, little restriction will be needed in an uncomplicated case with a fair urinary output. Usually 1-2 pints may be allowed or even a little more, if the weather is hot, and there is great fluid loss by perspiration. In cases with oliguria, however, especially if blood urea nitrogen and blood pressures are rising, a stricter control will become necessary to make sure that the amount of fluid given does not exceed the total output, i.e., output via kidneys, skin and lungs.

As to drugs, very little use can be found for them in uncomplicated cases. They are required only for the control of untoward symptoms and in the management of complications.

If the initial streptococcal infection, which preceded the nephritis is still smouldering, antibiotics are indicated. If the anemia is pronounced, iron may be used, although the results are rather disappointing. If complications set in they should be dealt with as they arise.

The 3 dangerous and potentially fatal complications to be on the alert for are: (1) hypertensive encephalopathy, (2) heart failure, and (3) renal failure.

In hypertensive encephalopathy, manifested by headaches, convulsions, coma, rising blood pressure, an attempt should be made to relax the vasospasm by magnesium Sulphate per os, per rectum (75 cc. of 50% solution), or parenterally (0.2 cc. Kilo of 50% solution subcutaneously). In extreme cases 100 cc. of 10% solution may be given slowly by the intravenous route, a procedure not without danger, as Magnesium intoxication with respiratory depression has been known to result. Sedatives and, occasionally, lumbar puncture may control convulsions, where other measures have failed.

Heart failure manifested by tachycardia, cardiac enlargement, edema, etc., should be treated along the usual lines with oxygen, Morphine and Digitalis. Digitalization should be rapid, preferably, with a rapidly absorbable and excretable preparation, e.g. Digoxin.

Treatment of renal failure progressing to uremia and associated with oliguria or anuria is like that of any other renal shutdown. It is directed toward supporting the chemical structure of the body until renal function is restored. This is usually attained by giving no more fluids and electrolytes than the patient eliminates via kidneys, lungs,

skin, and gastro-intestinal tract, while providing a high caloric, protein-free diet. (Treatment of anuria is dealt with in detail elsewhere in this course).

No specific treatment exists for the cases that relentlessly progress toward renal failure and death within 4-12 months. Palliation is all that is possible.

No treatment at all is necessary for those who pass into the "latent" asymptomatic phase with albuminuria as the only manifestation. They should be encouraged to lead normal lives.

A clinical picture different from the one described above is presented by a patient, whose main and sometimes the only symptom is edema of insidious onset, and gradual progression. The patient may belong in any age group and be of either sex. He gives no history of preceding infection. Examination reveals, in addition, to the edema, the following findings: albuminuria, hypoproteinemia, and hypercholesterolemia. As the picture unfolds, many names leap to one's mind: subacute nephritis (Volhard and Fahr), chronic parenchymatous nephritis, second stage (Boyd), Type 11 nephritis (Ellis). Again, for the moment, it may be well to forget the labels. In fact, it may be best not to think in terms of disease at all, but in terms of a symptom-complex with many causes, a syndrome which may be caused by Nephritis, Nephrosis, Diabetes, Amyloidosis, Syphilis.

Management in this type of case also begins with evaluation of prognosis. The outlook, however, is much worse than in the type previously discussed. According to Ellis, complete recovery occurs in only 5% cases. A somewhat less pessimistic stand is taken by Pediatricians, who report a fairly high rate of recovery in their cases of lipid nephrosis, which according to them forms a sizeable subgroup of the nephrotic syndrome. In view of the above, it is best to avoid a totally pessimistic attitude, and to tell the parents or the patient that the disease is of a chronic and recurrent nature but not hopeless. The patient need not be hospitalized, nor is strict bed rest necessary, except during exacerbations or intercurrent infection. As a rule, moderate rest only is required. The patient should not be pampered, overindulged or fussed about. Mental hygiene and psychosomatic aspects must not be neglected. During edema free intervals he should be encouraged to resume work, if it is not of a strenuous nature.

Therapy is directed mainly toward control of edema and maintenance of good nutrition and guarding against and treatment of intercurrent infection.

The cornerstone of the treatment of edema is a salt-free diet. It is unpalatable, but essential. There is no disagreement on this point.

On the other aspects of therapy, however, there is less unanimity. Many think that a diet high in

protein is indicated, and recommend 3 gms. of protein per kilo body weight daily. This often necessitates supplementation of diet with protein drinks. Others advocate parenteral administration of protein either in form of blood, plasma or salt free albumin. The rationale of this trend is based on the assumption that the edema is due mainly to hypoproteinemia, and the latter in turn is caused by loss of albumin in the urine. The protein given, thus supplies a deficiency. It is replacement therapy. Since it is doubtful that the edema is the result of hypoproteinemia, and even more doubtful that the latter is due to loss of albumin in the urine, and since neither oral nor parenteral administration of protein has, to date, been very successful in raising the plasma protein levels (which is not at all surprising, since plasma protein represents only 1/30 of the total body protein pool), the usefulness of high protein therapy has been questioned by many authorities (Persike, Addis, Taylor). Some even think that excessive protein intake is actually harmful. Probably high protein diets have very little influence one way or the other. There should be an adequate amount of protein given, however, because most of these patients are young and need it for replacement of broken down tissues and growth. When azotemia begins to complicate the picture, it is best to reduce the protein to  $\frac{1}{2}$  gram per kilo.

Fluids need not be restricted, if salt free diet is adhered to. Diuretics are best avoided, although occasionally a careful and judicious use of a diuretic may bring about diuresis where other measures fail.

Mechanical procedures, e.g., incisions of dorsum of foot for drainage of edema, or paracentesis abdominis for ascites are very helpful.

Cation exchange resins are still in the process of evaluation. Acidosis and potassium depletion are the dangers to be weighed against their benefits.

Pyrogens and induction of measles have not been successful. On the whole, the picture is discouraging.

The third clinical picture is that of a patient with chronic progressive impairment of renal function and ultimate renal failure. This pattern is not as clear-cut and uniform as the preceding ones, because here one does not deal with a disease entity, but with an end stage of many diseases.

Nephritis, pyelonephritis, cystic, kidney, hypertension, etc., may eventually end up in renal failure. The clinical picture is colored by the causative factors, and varies with the stage of renal insufficiency. A patient may be surprisingly well with a high B.U.N. if the progress is slow and gradual, and may be acutely ill with lower B.U.N. values, if the rise is more sudden.

In the early phases, polyuria, nocturia with resulting dehydration are the main symptoms, later gastro-intestinal symptoms supervene, and later still with retention of acid substances and failure of renal ammonia formation, there is acidosis with resulting hyperpnoea. With rising blood pressure, there may be hypertensive encephalopathy. Specific electrolyte imbalance, e.g., rise of Potassium, fall of Sodium, Chlorides, Calcium, have their characteristic clinical manifestations. In addition to the above picture, compounded of dehydration acidosis, specific electrolyte disturbances and hypertensive encephalopathy, there possibly is an unknown factor, an organic toxic metabolite, somehow associated with protein catabolism which may be responsible for the profound C.N. system disturbances, for the nausea, the anemia, the pruritus, etc.

Since the process is progressive, treatment is frustrating. In the early pre-uremic phase, the onset of uremia may be delayed by a liberal administration of water and salt. The former offsets the accumulation of nitrogenous products and replaces the water loss, the latter replaces the salt loss consequent upon polyuria, and facilitates the work of the kidney in diluting the urine.

As the Blood Urea nitrogen rises a diet high in calories and low in proteins is prescribed. If there is acidosis, sod. bicarbonate may be given. Foods rich in potassium are best avoided, although the danger of potassium intoxication is not anywhere as great as in acute uremias. When parenteral feeding becomes necessary, one should be guided by the electrolyte picture. On the whole the process is irreversible and treatment is at best palliative.

The clinical patterns described above have many variants and many aspects which have not been mentioned. Their treatment of necessity demands readjustments and modifications. Standard routine treatment is harmful and thoughtless. Dogmatism and generalizations are best discarded in favor of flexibility and individualization.



## In Lighter Vein

### Clinical Pathological Conference\*

#### Entrance Complaints

A 46-year-old piano tuner entered St. Boniface Hospital Clinic, complaining of weakness in the cremasters. He had been well until six months prior to admission. At that time while tightening a G-string on a Steinway Baby Grand in a River Heights home he noticed the sudden onset of severe dyspnoea, exophthalmos, and constipation. He at once began munching on an old liverwurst sandwich, which he carried in his work bag, and was immediately relieved of his symptoms.

#### Present Illness

Three months prior to admission, during a Wednesday evening Christian Science testimonial meeting, the patient noticed the onset of nausea, and a sharp substernal pain, which was not relieved by liverwurst, and radiated down the left arm, across Notre Dame Ave. and into the Legion Hall.

The following day the patient felt well enough to ride a tandem bicycle across Maryland bridge. He was overcome by confusion, landed in the Shriners' Hospital and traded the bicycle for three dozen sulphadiazine tablets. He ingested all these at once, with a beer chaser, and the following day broke out in a rash. The day after that he broke into a sweat, and on the third day broke into Holt Renfrew, from which he stole a pair of size seven lady's evening slippers, and some brown shoe laces. He was taken to the Winnipeg Psychopathic Ward, where he experienced difficulty in differentiating the patients from the internes. He was discharged the next day after being caught psychoanalyzing a paretic for money.

During this period the patient had been studying at night school to become a dermatologist. Three weeks prior to admission he contracted a severe case of plantar warts, he believes from playing footie-wootie with one of the female patients under an examining table.

#### Family History

The family is non-contributory. The patient's father is well at the age of 86 and is working, due to daily doses of ACTHS (a cold toddy at h.s.). A maternal uncle had piles but spent most of it on a Follies girl during 1938 and is now working as a food taster at Kelekis'. Two sisters are living and drinking, and an older brother is drinking and living. The patient himself is one of three abortions.

#### Past History

The past history is non-contributory, though lurid. At the age of 7, through a misunderstanding, the patient was detained in a cage in the Physi-

ology Department of the Medical College. He was subsequently despatched to the Anatomy Department, where his vessels were injected with a weak solution of formalin. This did not fix him, however, and he was found to have developed emphysema. At this point the physiologists were quite puzzled, until it was found that he had come from central Europe (Bukovina). The patient does not drink or smoke while asleep, but states that he grows belladonna in the back yard which he distributes to the neighborhood children.

#### Physical Examination

Physical examination revealed a well developed, normal man lying in bed. Respirations were 16 on the right side and 19 on the left. Blood pressure readings blew the top off three manometers. The heart was enlarged and its apical impulse could be felt in the scrotum. A systolic murmur of merry voices was heard at the apex, and a recording of a Roosevelt fireside chat at the base, which was transmitted to the neck, and caused the patient considerable pain.

#### Laboratory Results

Liver dye retention was excellent, and it was only with the use of whips that the liver was finally induced to release its hold on the dye. A phenolsulphonphthalein test showed 15 per cent excretion by the kidneys at the end of fifteen minutes; three quarts of stale beer at the end of one hour, and a rusty sound (French 18) was excreted at the end of 3 hours, which was immediately claimed by the General Hospital. Lumbar puncture revealed markedly increased pressure, 200 cc. of beer-like fluid draining off, much to the delight of the house staff. A barium enema was not well retained, much to the disgust of the radiologist. The blood sugar was 92; blood chlorides were fantastic; and blood potassium astronomical. Wasserman and Kahn were disgraceful.

#### Clinical Course

The patient was placed on a high vitamin diet until fibroblasts were seen growing down over his teeth. The vitamin C was then discontinued. Two days later patient was caught reading a newspaper in total darkness and it was felt best to remove the vitamin A from his diet as well. On the fifth hospital day, the patient read the latest issue of "Action Comics" from cover to cover, and then passed a large tarry stool. The following day, after a hearty house breakfast of beans, shad roe and sauerkraut, at eleven o'clock in the morning he was taken to the O.R. for "twice around the world." On his return to the children's ward, he awoke, whispered "God Bless Dr. Burrell!" assumed the lithotomy position, and expired.

\*Reprinted from the "Medical Issue" of the Manitoban.

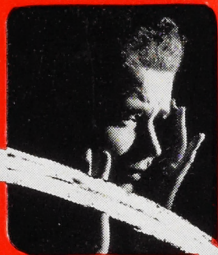


*"All patients described a sense of well-being."*

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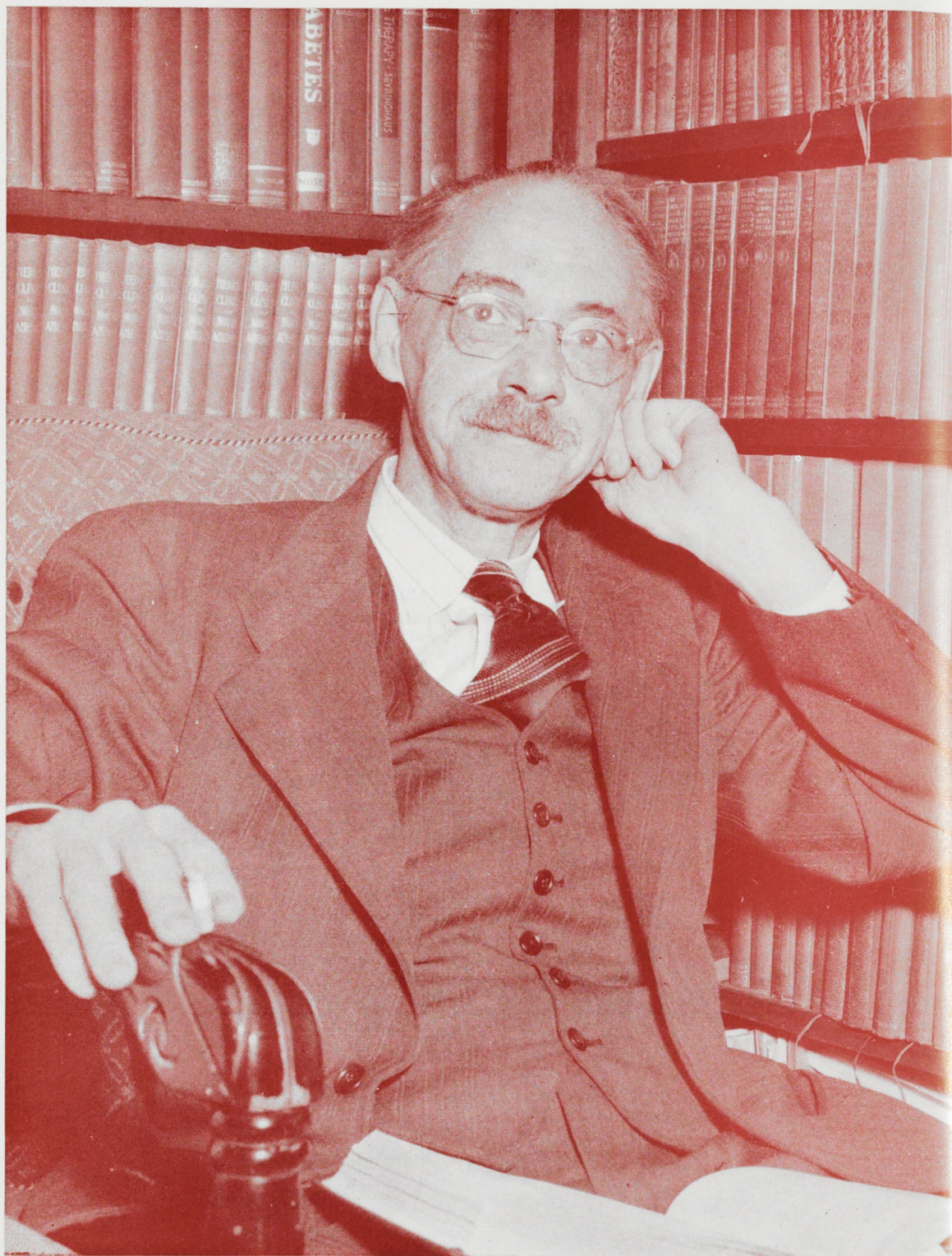
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## To Our Friend and Editor, John C. Hossack



HIS tribute is expressed by a host of friends in the medical profession to a colorful personality on the occasion of his sixtieth birthday and retirement from the medical teaching staff.

Following his graduation, John C. Hossack received the Master of Surgery degree, cum laude. He was not an opportunist; the lucrative aspect of surgery did not entice him. He loved books, students and people; hence, doctor, teacher, editor, medical historian and neurologist of authority.

His clinics on neurology have stimulated and held the interest of his classes, as evidenced by their unfailing attendance and lively reaction. He has recognized his students as individual personalities, and will always enjoy the informal contacts which form such a valuable part of his life. As a clinical teacher, he is excellent. His aptitude of expression, peppered with an occasional anecdote has converted what might have been a dry neurological autopsy, into a vivid, instructive, and pleasant dissertation. His lectures were well illustrated, simple and palatable. For his hours of tuition and self-sacrifice, he has felt compensated when a student ventured, "I enjoyed your clinic, I really learned something." He has won the regard and affection of the student body, and their esteem was demonstrated by naming him honorary president of the Students' Association.

As a physician he follows the highest tradition of his profession, "in the sick man he saw, not his color or his creed, his race or his caste, but only his need." Medicine is his religion. Honor, wealth and praise offered no attraction and held no interest for him. His purpose as a physician is to inspire faith, hope and charity, and to give of his skill.

His editorials display sound judgment and a tolerant attitude. His literary style has often been regarded as classic. He has the courage of his convictions and the strength to express them. His dictum is "that to be a successful member of human society gives the only satisfaction in life." His aim is to unite the profession into one harmonious whole for the benefit of all.

Dr. John C. Hossack knows personally and is known by more medical men and students than many of his contemporaries. His art of conversation, his gift of repartee, his individuality and sense of humor, place him in a category by himself.

To you, John Hossack, on the eve of your retirement, and at the commencement of a new and productive phase of your life, we, your friends and colleagues say: relax, reminisce with peace of mind, be happy. You are now ready to gather the laurels of the friendships you have planted and cultivated throughout the years.

We forgive you for your belated haircuts, we tolerate your illegible scrawl, and we admire your affinity for Shakespeare. To meet you is to know you. May we assure you, that for your sincerity and efforts, your teachings and counsel, and good fellowship, you will leave to posterity a symbol whereby you will long be remembered.

*"To thine own self be true, and it must follow, as the night the day,  
thou canst not then be false to any man."*—SHAKESPEARE.

S. S. P.



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## Book Reviews

### Save Time While Learning

If it were true 3,000 years ago it is at least equally true now that "of making many books there is no end and much study is a weariness of the flesh." For every book that existed in Solomon's time there are now thousands; and Solomon's physicians, whose names are unrecorded, had no journals piling unread upon their desks. Of the number as well as of the names of the court physicians we are ignorant; but in addition to their royal master they had further to care for his seven thousand wives and concubines as well as for his numerous progeny all of which under the circumstances, would require the services of at least one large clinic. The chances are that Solomon's doctors found little time to do much reading, in which regard they were on a par with the busy doctors of today.

Even at that time there were advances in diagnosis and treatment but life was cheap and medical care was sometimes so dangerous as to be a punishment. Even Jesus, the son of Sirach, the author of Ecclesiasticus, and himself a doctor took a rather dim view of medical treatment for he wrote "He that sinneth before his Maker, let him fall into the hands of the physician." Perhaps, when he wrote this he had one of his colleagues in mind! Or perhaps he was a surgeon!

But life has never been more precious, never more zealously guarded, never safer than it is today. Every month a thousand presses grind out stories of hopeful theories, and dramatic successes, but also, as a caution, of dismal failures. New weapons are being forged at a tremendous rate and then thrust into hands unskilled in their use. What is good? What is true? What is dangerous and false? The busier the doctor and the more numerous his patients, the more essential it is that he can answer these questions; but, by the very fact that his time is so fully occupied, the difficulty of keeping up-to-date is enormous.

### Medicine of the Year

That is why a book like "Medicine of the Year" is so valuable. Twenty-two authorities have put therein their siftings of a year's literature, and have arranged these in a form both concise and comprehensive. A large and complete index makes it easy to find the desired topic; and an hour or two a day for a few days will make the reader conversant with the essence of the year's medical knowledge.

There are 18 sections — Internal Medicine, Cardiovascular Diseases, Respiratory Diseases,

Allergy, Endocrinology and Metabolism, Dermatology, Neurology, Psychiatry, Obstetrics and Gynecology, Pediatrics, General Surgery, Fractures, Orthopedics, Otolaryngology, Ophthalmology, Anaesthesiology, Urology and Neurosurgery.

Each section begins with a brief commentary on the year's progress in that field. Then follow terse summaries of important advances. These are running commentaries, not abstracts, and in each case many references are given for the benefit of those who wish to pursue the matter farther. The editors (Morgan, Ebaugh, Whittacre, Rubin and Cole) have seen to it that nothing of importance is omitted and that each item is set forth clearly and with no excess verbiage.

The book is a handy volume of 298 pages printed in smallish type, and in two columns for easy reading. The index occupies 23 pages. The format has, in this edition, been much improved. It has no motto but we would suggest one modified from an old play "Doctor, I will go with thee and be thy guide in thy most need to go by thy side."

**Medicine of the Year**, third issue, 1951, J. B. Lippincott & Co., Montreal. \$5.75.

**Antibiotics and Chemotherapy** is the title of a new monthly periodical which is described as a journal of experimental and clinical studies on antibiotics, hormones and chemotherapeutics. The editorial board consisting of an international section (which includes the names of Fleming and Florey) and a United States section which numbers 52 members.

It is convenient to have an authoritative source for the latest information on the newest remedies. The newer antibiotics and the newer chemicals are, for many of us, instruments which are by us untried, at best wielded clumsily because we have yet to become accustomed to handling them.

The first number (April, 1951), includes papers by H. F. Dowling on "The Present Status of Antibiotic Therapy," by E. C. Kendall on "The Development of Cortisone as a Therapeutic Agent." There are articles on Rhodomycin and Fumagilin, two new antibiotics. The effects of penicillin in one group of animals and of aureomycin in another are reported as being a gain in weight despite a decrease in feed. There are a number of technical papers.

**Antibiotics and Chemotherapy** is published by Washington Institute of Medicine, 667 Madison Avenue, New York 21, New York. Subscription rates, \$11.00.





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## Editorial

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J. C. Hossack, M.D., C.M. (Man.), Editor

### The Convention

It is none too soon to think about the Convention in October. The Chairman of the Programme Committee is Tony Gowron. Associated with him are Wendell McLeod, A. B. Houston, Sam Peikoff and myself. We are determined to make it well worth your while to attend.

In addition to the speakers supplied by the C.M.A. we hope to have as guest speakers some men of international reputation—men with whom you are familiar through their printed works but whom you otherwise could hear only after long travel. There will be no exclusion of local talent but rather a wider inclusion of authorities from outside our Province.

The programme is being planned from the stand-point of the man in general practice. The local and visiting specialists will be asked to direct their talks to practitioners who want to know and need to know, the answers to every day problems.

The days of meeting will be October 10, 11 and 12. We ask you to plan now to attend. We want to make it a good show and nothing is more encouraging to speakers than the assurance of a large attendance when they speak.

But do not forget that the Clinical Programme is only part of the meeting. There is business to discuss and you should consider it your duty to

attend the business sessions. Personally I believe that all Committee Reports should be available for printing in the August 15th number. Then everyone would have a chance to read them over, meditate upon them and formulate such criticisms and suggestions as will assist the furtherance of our efforts.

Inasmuch as there will be no July number we shall not be able to give you any hint about the programme until mid-August. But in the meanwhile you can accept our assurance that the meetings will be much to your liking.

It may be that you who read these words are not a member of our Association. Perhaps you are a former graduate of our College now practicing beyond the borders of Manitoba. The Convention will give you an opportunity of meeting old friends. Perhaps you have no direct link with Manitoba or even with Canada. If that be so you will be very welcome. The Convention will give you a reason as well as a chance to visit our city and meet fellow workers.

Those of you who now are strangers will find many new acquaintances eager to make you feel one of us. They will show you the city or the country; and if you wish to hunt there are those who will entertain you at their lodges.

And to our expatriates—come and bring your friends.

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### Notes on the Scientific Programme

We are accustomed to speak of diseases as enemies and of our remedies against them as weapons. Every efficient weapon is two-fold in its power. It can destroy that against which it is directed and can also injure that which it is devised to protect. Our newer remedies are two-edged swords: they are powerful against disease but cap-

able also of inflicting great damage upon healthy processes.

Sharpest among our new instruments are ACTH and cortisone. They have done much good but they have also done much harm. The dangers of these potent agents will be the topic of a Round-table Conference during the Convention. This will focus attention upon an aspect of this subject which hitherto has been obscure and which is of great importance.

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### Addiction Finds a Place at Last

At last the topic of addictions is going to find a place on our programme. There will be a Round-table Conference on Alcoholism and Other Drug Addictions. Laymen have of themselves proven that alcoholism need no longer be regarded as a hopelessly incurable affliction. Already lay drug

addicts are trying to remedy their own unfortunate plight by the application of A.A. principles. So far the profession as a whole has shunned contact with addicts and their ailment. Now the subject is going to be discussed openly and sympathetically. Perhaps from this may spring a more intelligent interest in, and a more active attack upon, a problem which has hitherto been neglected.

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## Association Page

Reported by M. T. Macfarland, M.D.

### Income Tax and Partnerships

The following letters, dated April 23rd and May 18th respectively, were sent to all doctors in the province:

"Information from the Canadian Medical Association indicates that a recent ruling of the Income Tax Appeal Board will probably apply to members of medical partnerships and be retro-active to the taxation year 1949.

All of the expenses of practice which are deductible for income tax purposes still apply, but each of the partners renders an account for those expenses to the partnership and they are paid prior to the distribution of the net income of the partnership.

The individual income tax returns of such partners are then reduced only by the statutory deductions and charitable donations."

\* \* \*

"With further reference to my letter of April 23rd, the following information has been received:

1949 returns which have not been assessed will be dealt with by direct negotiations between the Divisional Income Tax Office and partnership concerned. Amended returns for 1949 will probably be requested within thirty days.

1950 returns: It is suggested that amended financial statements, which have the approval of all the partners, be submitted. For your own protection, these should be submitted as soon as possible. Amended statement should contain all the expenses which the partnership will admit. If a statement of distributed profits was shown on the original return, a revised statement should be submitted to reflect the amended distribution of profits. If a balance sheet was submitted with the original return the capital section should be revised to incorporate the amendments to the distribution of profits.

In 1951 the applicable expenses should be entered in the books of the partnership in the same manner as the normal partnership expenses. The resulting 1951 financial statements will then show all expenses, both partnership and individual.

Partnership Agreements: It is suggested that where written partnership agreements exist they should be amended in such a manner as to exclude the need for a partner to assume certain individual expenses, such as those pertaining to automobile expenses, instruments, books, office expenses in residence, Association dues, etc. Automobile expenses might be at an equitable rate on mileage basis, such expenses to be subjected to the same scrutiny as any other expense."

### Southern District Medical Society

The spring meeting of the Southern District Medical Society was held at 3 p.m., on Thursday, May 10th, 1951. The Board Room of the Winkler General Hospital provided ample accommodation for a splendid turnout, which included Doctors A. P. Warkentin, President, and C. W. Wiebe, Winkler; J. P. Boreskie, Secretary-Treasurer, Gretna; J. A. Lohrenz and S. S. Toni, Altona; E. K. Cunningham and H. W. C. North, Carman; D. G. Irving, Crystal City; C. J. W. Dick, Dominion City; W. A. Karlinsky, Emerson; J. R. McDougall, Elm Creek; J. O. Boxall, Manitou; C. L. Blight, Miami; A. F. Menzies, J. C. Menzies, and Wm. Colert, Morden; J. C. Elias and J. S. Holowin, Morris; C. V. McClelland, Pilot Mound; T. D. Miller, Roland; J. H. Boucher, St. Jean; L. R. Coke, P. T. Green and M. T. Macfarland, Winnipeg.

Following a brief business session in which Dr. H. W. C. North was named representative to the Nominating Committee, Manitoba Medical Association, the Scientific Program was held.

Dr. P. T. Green discussed "ACTH and Cortisone," while Dr. L. R. Coke gave a description of Electrocardiography as an aid to diagnosis, copiously illustrated by lantern slides.

A delicious dinner was served in the nurses' dining-room at the hospital, following which many aspects of Association business and interests were discussed by Doctor C. W. Wiebe, S. S. Toni and M. T. Macfarland.

### Northwestern District Medical Society

The recently opened Hamiota Hospital provided a suitable setting for the spring meeting of the Northwestern District Medical Society on Wednesday, May 16th, 1951. The day was fine and there was a good turnout of doctors and their ladies. The Scientific Session was highlighted by Dr. Syd. Israels, whose subject was "Anaemias of Infancy," and Dr. Jan Hoogstraten, who spoke on "The Value of Bone Marrow in the Diagnosis of Anaemias." There was a good active discussion and the men present were well rewarded for their attendance.

Mrs. E. D. Hudson entertained the ladies during the afternoon and at 5 p.m. a tour was made through the new hospital.

Dinner was served and a social hour followed the session.

### Highlights of Executive Committee

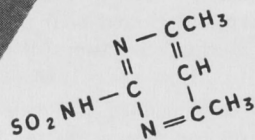
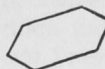
Wednesday, April 18th, 1951

Eighteen members and the Chairman, Pension Plan Committee, attended.



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**Pension Retirement Fund — Employees:**

The Executive reviewed the Basic Pension and Retirement Fund and the Supplementary Pension Plan for employees of the Canadian Medical Association. The plans were prepared by the Sun Life Assurance Company and are to be presented for the approval of General Council in June if found to be sound by the Solicitor. Possible participation of employees of the Manitoba Division was deferred until further details of the plans are available.

**Pension Plan for All M.M.A. Members:**

The Chairman of the Pension Plan Committee stated that, prior to the presentation of the federal budget, it was felt that some consideration might have been given towards allowing income tax deductions for a pension scheme by self-employed persons. Now, however, it looked as if the proposition must await the next federal election.

**Section of General Practice, C.M.A.:**

A copy of Minutes of the meeting of the Executive of the Section of General Practice, C.M.A., was received from the Secretary and included the remarks by the Manitoba representative that he had long heard the General Practitioner described as the backbone of the profession but that the G.P. was getting a bit tired of being the coccyx.

**Radiologists:**

The President named the following committee to study and report on the proposed bill to incorporate the Radiologists: Doctors Edward Johnson, Chairman; A. E. Childe, R. W. Richardson, L. A. Sigurdson, W. F. Tisdale, and representative of the Section of Radiology of the Association.

**Canadian Society of Laboratory****Technologists:**

Appreciation was expressed for the Association contribution towards the expenses of June meeting of the federal body in Winnipeg.

**Coroners' Fees:**

From a questionnaire which was circulated to 93 coroners in and for the province of Manitoba, 47 replies were received; a very good response which will require further analysis.

**Health Units:**

The question of payment for services rendered by physicians in the larger health units proposed by the Department of Health and Public Welfare evoked considerable discussion. The matter was referred to the Fee Committee and opinion expressed that the principle of fee-for-service should apply where applicable.

**Recording Machine:**

The Treasurer and Chairman, Committee on Economics, were authorized to purchase a recording machine.

**Proposal of B.C. Division:**

The question of holding the Divisional Annual Meeting in the spring rather than the fall was

proposed by B.C. The arguments for such a change included hotel accommodation and consideration of business prior to the meeting of the C.M.A. The disadvantages were cited, and decision was delayed until the next meeting of Executive.

**Canadian Arthritis and Rheumatism Society:**

The Society sought provincial endorsement which was temporarily withheld since the C.M.A. Executive Committee had passed the following resolution:

"THAT, whereas the emergence of a large number of medico-lay organizations, appealing to the public for funds for the amelioration of specific disabilities is of great concern to the medical profession; therefore, be it resolved that the Canadian Medical Association recommend to the Minister of National Health and Welfare that, before incorporation of such organization is granted, and before any public appeal for funds is authorized, a thorough investigation of the need be instituted and endorsement be publicly made by the Department of National Health and Welfare."

The C.A.R.S. was formed in January, 1948, under the direction of the federal Minister of Health and National Welfare, and the meeting included representatives of the C.M.A. On receipt of word that C.M.A. not only approved C.A.R.S., but had a joint committee to carry out the recommendations of the Arthritis Survey, the word was relayed to the local division in time for the financial campaign.

**Sickness Survey:**

A form of permission for the physician to divulge the diagnosis of illness suffered by the families which are being surveyed was approved by the legal representatives of the Department of Health and Public Welfare, and a letter seeking the co-operation of the profession was sent out over the signatures of the Director, Extension Health Services, and the Executive Secretary.

**Vacancies for Medical Practitioners:**

Following the visit of the Minister of Health, two deputies, and the Minister of Education to the Executive Committee in March, when the question of bringing physicians from the British Isles and Europe was discussed, a survey was to be undertaken by the Department of municipalities, towns and villages which were requesting doctors to inquire what each was prepared to offer in respect of office and housing accommodation, municipal contract or salary, etc., to attract a physician to settle. The returns thus far have been few and unconvincing. One member recalled that many of the points raised in the Report of the Rockefeller Foundation on Personnel Training Requirements of the Health Services Act of the Province of Manitoba, 1946, also attempted to outline a solution to the problem.

## ● ANTACID

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An efficient antacid adsorbent without tendency to constipate.

(I. R. Jankelson; Ann. J. Digest. Dis., 1947).

An effective buffer for over two hours without carrying gastric juice pH above upper limits of physiological range.

(Rosset and Flexner; Ann. Int. Med., 1944).

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(R. D. Dripps; J.A.M.A., 1949).

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Phenobarbital Sodium .....	1/16	grain

### ANCATROPINE ALKALINE Compressed Tablets

Dried Aluminum Hydroxide Gel. ....	10	grains
Magnesium Hydroxide .....	5	grains
Homatropine Methylbromide .....	1/40	grain
Phenobarbital .....	1/6	grain



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**Fee Committee:**

Ratification of decisions of the M.M.A. Fee Committee were held in abeyance until agreement might be reached of the principle that fees should not be changed except by the Manitoba Medical Association on the advice of the Fee Committee set up for the purpose.

**Membership:**

The figure for 1951 is still behind that of the previous year, but an additional letter has gone out to advise members whose fees remain unpaid that their names will be removed from the mailing list for the Canadian Medical Association Journal.

**Fee Taxing Committee, W.C.B.:**

Three members selected from the five-man panel sat down with the Chief Medical Officer, on April 11th, to review cases in which the fee requested by the attending physician appeared out of line with the schedule or to assess a fee in cases where no fee was stated.

**Advisory Commission Under the Health Services Act:**

One of the Association representatives advised that legislation had been submitted disbanding the Hospital Advisory Board and the taking over of the function by the Advisory Commission. The representative from the University of Manitoba has been replaced by one from the associated Hospitals.

**Third Biennial Western Regional Conference on Social Work:**

Advice was received that this conference would be held at the Fort Garry Hotel on May 7th to 10th with an interesting programme, and an invitation extended to members of the profession.

**Annual Meeting — Scientific Programme:**

An enthusiastic meeting was held on April 28th to lay the foundation plans for the fall meeting. Subsequently, a notice was sent to each member of the Association, requesting scientific contributions. The response has been very gratifying, and the high quality and interest of the programme is assured.

## Winnipeg Medical Society

Reported by J. R. Mitchell, M.D.

The April meeting was held April 20th at the Medical College. The programme was prepared and presented by the departments of Anatomy, Physiology, Pathology and Biochemistry and was introduced by Dean Lennox Bell who explained that there is now a very lively research programme underway at the College assisted by grants totalling to between forty and fifty thousand dollars from the National Research Council, National Cancer Society, National Defense Board, and Canadian Insurance Society. These grants have been distributed through the basic science departments.

Prior to the formal presentations Dr. J. D. Adamson spoke briefly regarding The Canadian Arthritis Society campaign for funds. He pointed out that the Society carries on, and assists, a large research programme and that a large proportion of their funds are spent in Winnipeg to assist research work in arthritis in all the teaching hospitals.

The papers presented were: "How Lies the Appendix?" by Dr. I. MacLaren Thompson of the anatomy department; "Antiduretic activity of the Serum of patients with congenital heart failure and liver disease with possible clinical application," by Drs. Fyles and Perry of the research department associated with the department of Physiology; "A study of 80 cases of cancer of the Prostate, 1930-1940," by Dr. Jack Newell of the Department of Pathology; and "Bilirubin changes in Jaundice," by Dr. White, Professor of the Department of Biochemistry.

Dr. Thompson presented a statistical summary made by a group of English investigators on the position of the appendix gleaned by several thousand observations made on post mortem and surgical cases. Despite the fact that reports represented a vast accumulation of experience, nevertheless Dr. Thompson pointed out certain discrepancies in the figures and demonstrated a method of testing whether or not such observations are consistent within themselves, and of locating inconsistencies that may exist unsuspected.

Drs. Fyles and Perry presented some original research work conducted on the wards of the General Hospital. Their paper will be published in full in the Canadian Journal of Medical Science. They pointed out that in liver damage there is an increase of an antiduretic factor in urine. They carried on observations to determine if cardiac edema could be due to an increase of this factor.

Dr. Newell observed that in the series of cases he reviewed all occurred before 1940 so that treatment with hormones had not been attempted, nor had there been any castrations. He demonstrated a classification of type of cell and activity devised by Dr. Edwards in the department of Pathology and compared the classification with clinical symptoms and prognosis.

Dr. White first graphically demonstrated the course of bile metabolism in health and disease and then showed the limitations of the Van den Bergh test in differentiating between hepatic disease and obstruction. He then explained a

newer test recently devised to detect liver or biliary tract disease known as the "One Minute Bilirubin Test." A correlation of the minute test (1'B) with total bilirubin is given by the formula "Total value = 2.02 (1'B)<sup>0.9</sup>" Dr. White presented some research of his own on the test, as yet uncompleted, which seems to indicate that the test is not based on a sound appraisal of all the possibilities.

NOTICE

Since June 1st the anaesthetists of St. Boniface Hospital—under the name of "The St. Boniface Anaesthetic Clinic"—have been working on a Fee-for-Service basis. The Fee Schedule of the Canadian Anaesthetists Society is being followed.

Opportunities for Medical Practice in Manitoba

A delegation from the Provincial Government consisting of Hon. Ivan Schultz, Minister of Health and Public Welfare; Dr. C. R. Donovan, Acting Deputy Minister; Dr. M. R. Elliott, Director of Health, and Hon. W. C. Miller, Minister of Education, discussed the vacancies for medical doctors which exist in the Province at the present time, and requested the co-operation of the Association in attracting properly qualified medical men to these areas.

The Ministers stated that the government had been under pressure from the opposition and in caucus to have the vacancies filled, and suggestions were made to increase the intake into medical school or to subsidize doctors from Great Britain or Europe to come to Manitoba and to restrict their practice to certain areas. The names of fifteen places which appear to offer opportunity for a doctor to earn a livelihood without any assistance from the provincial government were read as follows:

Bowsman, Elie (Municipal), †Elphinstone (Municipal), Fisher Branch, Foxwarren, Glenella, McCreary, \*MacGregor, Minitonas, Newdale (Municipal), †Sandy Lake, Sperling, Starbuck, \*Sydney, Waskada (Fee-for-service).

†Either one.  
\*Either one.

The Executive Secretary outlined the extensive work which has been done through the professional registry during the past four years. He indicated that the problem was not one of getting as much as of keeping those who do settle in Manitoba since large numbers of registrants migrate. Any one of more than 10,000 registrants of the Medical Council of Canada or of 74,000 registrants of the General Medical Council of Great Britain

may apply for registration and a license to practise medicine in this province. A recent letter from one who is making a study on behalf of one of the larger foundations of European Medical Schools indicates the generally low standard of such schools. It was agreed that if ten places offered the equivalent annual remuneration of \$5,000.00, graduates of the University of Manitoba would probably be available in sufficient numbers.

The Canadian Red Cross Blood Transfusion Service, March, 1951

Name of Hospital:	Total Patients Transfused	Total Bottles Used
Winnipeg General .....	343	653½
St. Boniface .....	167	272½
Misericordia .....	67	96½
Grace .....	105	147
Deer Lodge .....	41	67
Victoria .....	28	41
St. Joseph's .....	31	44
Children's .....	33	28
Municipal .....	13	18
Concordia .....	11	19
Shriner's .....	1	1
Selkirk General .....	12	22
Brandon General .....	37	41
Portage la Prairie General .....	11	12
McKellar Hospital, Ft. William .....	86	104
General Hospital, Pt. Arthur .....	43	52
St. Joseph's Hospital, Pt. Arthur .....	52	61
Others .....	66	112
	1149	1792½

Comments

There are some startling figures in this month's returns. Firstly, 1800 bottles of fresh blood were used, of which 1400 were used in the city of Winnipeg. This is a far cry from the 600 bottles a month which, when I first came to the city, I was told by the highest authority to be the average usage.

Secondly, and more disturbing from the point of view of smooth operation of the blood bank, of 2,146 bottles used, already cross-matched for specific patients, 870 bottles were returned unused. In other words, medical men in the city of Winnipeg over estimate their transfusion requirements by 40%. Surely something can be done to lessen this figure.

Cecil Harris, B.Sc., M.D., M.R.C.P.,  
Provincial Medical Director.

April, 1951.

## General Practitioners

General Practitioners' Association of Manitoba  
In Affiliation with the Manitoba Medical Association

### Executive Meetings

The General Practitioners' Association of Manitoba held the last two Executive Meetings at 901 Boyd Building on Thursday, April 19, and Tuesday, May 1, 1951.

Those present were: Drs. M. M. Brown, V. F. Bachynski, J. McKenty, R. J. Cleave, G. F. Hamilton, J. F. Edward, R. J. Martin, N. I. Corne, A. A. Keenberg, C. F. Benoit, W. J. Boyd and L. A. Sigurdson.

The letter to Dr. J. W. Cairns from the Chairman of the Committee on Economics, Dr. R. W. Richardson, was read.

#### Membership

The president stated that the Association now has on file the most up-to-date list of General Practitioners, both rural and urban. The importance of having as many practitioners in the province as members was stressed to the Chairman of the Membership Committee. Money had to be raised for the scholarships amounting to \$300 annually. The president explained the importance of the Association to the rural practitioners, indicating that the Association could be of the utmost value to them in handling their problems. It was decided to send out the letter, read by Dr. Edward, under registered mail and marked "Personal" to all General Practitioners in the Manitoba Medical Service Block.

**Treasurer's Report:** The treasurer, Dr. Keenberg, reported \$1,100 now in the bank and 110 paid-up members.

**Workmen's Compensation Board:** Drs. Gowron, McKenty and Hitesman were appointed to the Fee Negotiation Committee and Dr. McKenty reported that the Board wishes a brief presented.

**General Meeting:** This was set for Tuesday, May 22, in the Medical College, the programme to consist of the following:

(a) Dr. J. McKenty's report on the Executive Meeting of the Canadian General Practitioners' Association held in Toronto.

(b) 5-minute talks on San Francisco meeting of the American Academy of General Practice, by Drs. McKenty, Hamilton, Boyd, Hastings, Bowles, and Brown.

(c) Medical film to be arranged by Dr. A. J. Winestock.

**Manitoba Medical Association:** The secretary gave a report on the liaison that was established between the Honorable Ivan Schultz, Minister of Health and Public Welfare, and the Honorable W. C. Miller, Minister of Education, with the Executive of the Manitoba Medical Association, in regard

to securing doctors for rural areas. For the meeting of the Manitoba Medical Association in October, 1951, Dr. Bachynski, Chairman of the Education and Scientific Committee, is attempting to get a representative from the American Academy of General Practice to be after-dinner speaker.

**Canadian Medical Association:** Dr. M. T. Macfarland reported that no delegates from the General Practitioners' Association have been asked to represent the province at the meeting to be held in Montreal in June. It was suggested that in future two representatives from this Association be selected to go to the Canadian Medical Association meetings. Drs. McKenty and Gowron will be attending the meeting but in other capacities, not as the official representatives of the General Practitioners' Association.

**American Medical Association:** Delegates to the A.M.A. Annual Meeting in Atlantic City will be Drs. L. A. Sigurdson and J. Roy Martin.

**Social:** All arrangements for the supper dance at the Don Carlos Casino, May 30, were left in the hands of a committee consisting of: Dr. Corne, Chairman, and Drs. Boyd, Benoit and Cleave. Door prizes will be given.

Respectfully submitted,

L. A. Sigurdson, M.D., Secretary.

### Practitioners for Rural Areas

There are some rural areas in Manitoba that are without a doctor and on behalf of the people in these areas a meeting was arranged with the Minister of Health, the Hon. Ivan Schultz, the Minister of Education, the Hon. W. C. Miller, and the Executive of the Manitoba Medical Association. The Minister of Health stated that there was criticism of the government both from the opposition and also from the members within the government.

#### No Shortage of Doctors in Manitoba

The Minister went on to state that there was no shortage of doctors in Manitoba, that the problem was one of distribution. There were 15 to 20 rural vacancies to be filled and it was of the utmost importance that the government and the medical profession should co-operate to meet this need.

#### No Increase in Number of Medical Students

Suggestions have been made that the number of students admitted to the Medical Faculty should be increased from 72 to 120 but this was no solution to the problem since 60% of the graduates leave the province and there was no way of preventing this. Mr. Miller stated that the University had a very competent Board of Governors and the



government did not wish to interfere in University matters. The number and selection of students admitted were controlled by the Board of Governors.

Out of this part of the discussion, a suggestion was made that perhaps greater consideration should be given to the men from the rural areas of Manitoba for admission to the Medical College on the basis that they might be more likely to return to the rural areas to practise. This would be in line with one of the recommendations made by the Rockefeller Foundation in their survey here five years ago. (Out of 72 students in the present third year, 9 are from rural Manitoba, i.e., 1 in 8).

### Medical Profession Not a Closed Shop

Both Ministers mentioned that among the "back benchers" and the "man-in-the-street" there had developed the "closed shop" idea in regard to the medical profession. The executive secretary of the Manitoba Medical Association stated that we have reciprocity with Great Britain, New Zealand, Australia and the other nine provinces of Canada, which in effect means that approximately 90,000 doctors could come to Manitoba and register without any examination and practise in the province. This fact indicated clearly, the secretary suggested, that there is no closed shop in the medical profession, as far as the right to practise in the province of Manitoba is concerned.

### D. P. Doctors for Rural Areas

In order to obtain doctors for the few rural places in Manitoba, the Minister of Health stated that, although he had been quoted in the local newspapers as intending to go to Britain and the continent to secure doctors, he added it was not his intention to do so until all possibilities of filling the need locally had been exhausted.

He was fully cognizant of the fact that merely bringing doctors from Europe would not solve the problem because that course had been tried in Saskatchewan and had failed. That province brought out 116 doctors and of this number only 27 remained in the rural areas.

### Doctors' Workshops

In order to try to stimulate interest in rural practice, it was natural that the question: "Why is it that doctors do not want to practise in rural Manitoba?" should arise. One of the greatest inducements to attract the medical man to the country was some type of assistance in getting established, for example, providing him with a house or an office or a car. Many of our young graduates are without funds and need such help. Within the next 13 months about 155 medical students will graduate from the University of Manitoba, many of whom will be looking for locations, and it would be of the utmost importance to secure these young doctors before they go elsewhere. This bears out the Rockefeller Report where it is stated:

"Certainly the answer does not lie wholly in

increasing the number of students admitted to the Faculty of Medicine of the University. One was impressed by the emphasis given to the rural problem of lack of doctors in the hearings of the briefs submitted, particularly by members of the Advisory Commission under The Health Services Act, and of the Manitoba Wheat Pool. The first point brought out was the absence of amenities of which the most important has been the lack of 'doctors' workshops'."

It was therefore felt that, if funds were available to bring men from Europe, surely those funds could be made available to our own local graduates who are familiar with the country, the people and the language. Mr. Schultz then stated that he would make a survey of the districts that wanted a doctor and ask them what they were prepared to do to assist a doctor in starting a practice.

L. A. Sigurdson, M.D., Secretary.

### Are You A Member of G.P.'s?

Dear Doctor:

Are you a member of the Manitoba General Practitioners' Association? If not, are you interested in any or all of the following?

1. General Practitioners' Scholarships to Internes from our School of Medicine—Annual value \$300.00.
2. Greater interest in Medical Teaching along the lines of General Practice.
3. The problems of the Rural Practitioner practising within the Provincial Health Unit.
4. General Practitioners' Fees for Anaesthesia under the Manitoba Medical Service. This applies almost exclusively to General Practitioners outside of Winnipeg.
5. The improvement of the financial standing of the Manitoba Medical Service on a basis that will not require its Medical Members to subsidize it to the amount of nearly \$400,000.00 annually, thus making it acceptable to the Specialist, the General Practitioner, the Provincial Department of Health and Mr. Average Citizen who pays the bills.
6. The present preferential fee tariff of the Manitoba Medical Service.
7. The adoption of one-fee-across-the-board with the privilege of extra billing.
8. The adoption of a deductible clause in the Manitoba Medical Service contract.
9. The Provincial Department of Health's proposed importation of Doctors from outside the Commonwealth.
10. The present unsatisfactory schedule of fees and settlement of accounts of the Workmen's Compensation Board.

We, Doctor, are interested in these. If you are, we would be pleased to have you become an active Member of our Association.

J. F. EDWARD, M.D.,

Chairman, Membership Committee.

## Social News

Reported by K. Borthwick-Leslie, M.D.

With very mixed feeling of regret, "birthday holiday," and pride, I attended that most interesting Sunday afternoon function in honor of Dr. J. C. Hossack. 'Twas his birthday, but also the recognition by all his associates at St. Boniface Hospital of his retirement from the Active Teaching Staff. Dr. and Mrs. Tony Gowron were, as usual, the perfect host and hostess—alas for that horrible sore throat which interfered with my partaking thereof, but the boys obviously enjoyed all the hospitality displayed. If one can imagine Dr. Hossack speechless, there he almost was, upon being presented with an engraved autographed parchment scroll, and a beautiful dictaphone recording machine, also orally autographed. Sure and there wasn't a dry eye in the house at the end of his response. Rumor reports that Gordon's golf game later wasn't too good! Thank you, boys, for inviting me.

The anti-climax came immediately after when I "shot" Dr. Hillsman penicillin. He had to miss the party because of a bad bout of the "Flu". Have never enjoyed penicillin more!

Well deserved honor to Dr. Ross Mitchell who has been elected President of the Manitoba Historical Society for 1951. Dr. Mitchell has done "eons" of work in both Medical, Manitoba and Literary History so the society is assured of an excellent year.

Dr. Paul L'Heureux, Medical Officer of the St. Boniface Health Unit, has been appointed Medical Superintendent of St. Boniface Hospital. He will replace Dr. D. S. McEwen, who will remain director of medicine and teaching.

Welcome back home to Dr. F. G. Stuart, his wife and boys. Frank looks wonderful, haven't seen the family yet, and reports a most thoroughly interesting and happy year overseas. He attended the International Congress of Radiology in London, July, 1950, spent about 10 months in the Radiotherapy Department of the Royal Cancer Hospital, visiting several other centres including Paris. He wrote and obtained the diploma in Medical Radiotherapy granted by the Royal College of Surgeons of England and the Royal College of Physicians, London.

Similarly receiving his diploma in Radiotherapy is Dr. E. T. Felsted, who is returning to Vancouver to be in charge of the use of radioactive isotopes in the treatment of cancer. He will be associated with the B.C. Medical Research Institute.

I may be premature in congratulating Dr. J. A. Hildes, Assistant Professor of Physiology and Medical Research at the U. of M., on being named Medical Director of the Municipal Hospitals, but rumor and the Tribune name him as successor to Dr. J. L. Downey, who has entered private practice.

Major Alan Davidson has donned the khaki this time and looks mighty smart. He has a surgical appointment, and is temporarily at Deer Lodge, but will be going east, and probably on to the European military front. We will all miss Al, particularly your neighbors. I only hope your replacement, Dr. F. B. Pearson, is as affable at taking some of my calls as you have always been, and I'm sure he will be. Really shouldn't wish you luck, but really do, is it fair to have that good looking young Dr. Ruth Mathers in your Fort Garry office, right around the corner from me? Hurry back while David and I still have a crust of bread.

Welcome to Medical Arts to Dr. Earl Stephenson, M.D., Ch.M., F.R.C.S. (Edin.), F.R.C.S. (C) who has opened his office for the practice of Urology. 432 is the number.

Dr. J. R. (Jimmie) Mitchell is beginning his P.G. in Obs. & Gyn., one year at the Maternity Pavilion, and thence to across the pond. Dr. Rod Davison, Handsart Blvd., has assumed responsibility for Jimmie's office, 423 Medical Arts and Wildwood Centre.

Dr. Claire Benoit also is departing from our clime, to Mayo's for 3 years Post-graduate work in Ophthalmology.

Congratulations to Dr. John F. S. Hughes, Winnipeg, and Dr. Metro Ogryzlo, Dauphin, Man., who have been granted Fellowships by the Canadian Arthritis and Rheumatism Society. They will both study in the United Kingdom.

While congratulations are in order, let us not miss all our new grads, especially Glen Lillington, winner of the University Gold Medal in Medicine, Manitoba Medical Association Gold Medal and the Chown prize, also Lorne Jonat, winner of the Dr. Charlotte Ross Gold Medal in Obstetrics.

Dr. and Mrs. Henry A. Kaye, Melita, Man. (nee Angie Ghidon), are pleased to announce the birth of their son, Brian Henry, on May 7, at Brandon General Hospital.

More on Page 397



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## Social News

And then there is that student de luxe, Mary Mathers, daughter of Dr. A. T. Mathers and Mrs. Mathers. Mary has just won the French Government Medal as well as a scholarship at Smith College, Northampton, Mass., where she will study for her M.A. majoring in French.

Dr. Jack and Mrs. McKenty also glow with pride over daughter Betty who has been awarded the University Women's Club Scholarship.

Dr. Gerda Allison (Mrs. Gerard) has been elected president of the Medical Faculty Women's Club, succeeding Mrs. Charles Walton. Vice-President, Mrs. J. Downey; Secretary, Mrs. R. Cadham; Treasurer, Mrs. A. Klass. Best wishes from the Bulletin for an active successful year.

Dr. and Mrs. T. Kenneth Thorlakson announce the birth of Carla Gaye, May 25. Ken was just reported as being "best man" for his brother's wedding last week. We wonder?

Dr. and Mrs. C. L. Blight, Miami, Man., announce the engagement of their only daughter, Madeline, to Norman J. Cleveland, son of Mrs. O. M. Cleveland, Washington, D.C., and the late Mr. Cleveland. The wedding will take place June 23rd in St. James Anglican Church, Miami, Man.

The engagement is announced of Marie Alice Lambert, daughter of Mrs. C. A. Lambert, St. Boniface, and the late Dr. Lambert, to Joseph Morrissey, son of the late Mr. and Mrs. P. Morrissey, St. James. The wedding will be in Holy Cross Church, Norwood, June 16th.

The Church of the Messiah, Montreal, was the setting for the marriage, May 5th, when Dr. Elsa Lehmann became the bride of Dr. Hunter Heath. The bride is the daughter of the late Dr. J. E. Lehmann of Winnipeg and Mrs. Lehmann, now of Montreal. The groom is from Kinston, North Carolina. Both are graduates of McGill University. Dr. Eric Lehmann gave his sister in marriage. Following an extended motor trip the young couple will reside in Chinoquapin, N.C.

Dr. Cecil Sheps, who has been Associate Professor in Public Health Administration, University of North Carolina, has been awarded a travel fellowship by the World Health Organization. He will spend June, July and August studying the organization of medical care and public health in Britain and Scandinavia. He will be accompanied by his wife, Dr. Mindel Sheps, who is director of Student Health, North Carolina College.

Holy Trinity Church, Winnipeg, was the scene, May 9th, of the marriage rites of Frances Howe, daughter of Mr. and Mrs. Lewis Howe, and Dr. Robert Henry Thorlakson, son of Dr. and Mrs. P. H. Thorlakson. Dr. Kenneth Thorlakson was best man for his twin brother. Drs. Gordon Fahrni and Donald Magee were ushers. Following the reception at the Fort Garry Hotel Dr. and Mrs. Thorlakson left by motor for Mexico and California. They will reside in Winnipeg.

Dr. and Mrs. Geo. Brock announce the arrival of a daughter, April 24th.

Dr. and Mrs. Quentin Jacks announce the birth of their third son, Bradley Melvin, May 9th.

Dr. and Mrs. E. G. Brownell announce the birth of Lawrence Gray, May 4th.

Dr. and Mrs. Dallas Medd announce the arrival of Kathryn Mary Bjorg, May 5th.

I take great pleasure in announcing the birth of our pioneers in Winnipeg. The group who at last are bringing Winnipeg in line with other more progressive Canadian and American Medical Centres.

You know, of course, that the reference is to the St. Boniface Anaesthesiology Group, consisting of Drs. Marjorie Bennett, David Tass, Joan Crane, M. Minuk and D. P. Walmsley. Their central office is 400 Power Bldg., telephone 936 340.

The Grace Hospital staff are following smartly in line, with Drs. Hutchison and Luginsky, but they are still associated with the hospital staff.

Congratulations and the most sincere good wishes to all. Perhaps the pioneering spirit will be contagious enough to intrigue other underpaid individual anaesthetists so that Winnipeg can keep 'em, not just train em.

Dr. and Mrs. Hubert Kitchen announce the engagement of their only daughter, Enid R., to Edward Galt de Sieyes. The wedding will take place June 15th in St. Andrews Church, River Heights.

L. Duncan Croll, M.D., C.M. (McGill), F.A.C.S., announces the conclusion of his association in partnership. He will continue in the practice of Orthopedic and Traumatic Surgery at 661 Broadway Ave., Winnipeg.

May we present our sincere sympathies to Dr. David Swartz on the recent loss of his mother, Mrs. A. Swartz.

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**CONNAUGHT**

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## *A new form of penicillin G . . .*

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### In Oil with 2% Aluminium Monostearate

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## Department of Health and Public Welfare

### Comparisons Communicable Diseases — Manitoba (Whites and Indians)

DISEASES	1950		1949		Total	
	Mar. 25 to Apr. 21, '51	Feb. 25 to Mar. 24, '51	Mar. 26 to Apr. 22, '50	Feb. 26 to Mar. 25, '50	Jan. 1 to Apr. 21, '51	Jan. 1 to Apr. 22, '50
Anterior Poliomyelitis .....	0	0	0	0	0	2
Chickenpox .....	118	113	120	130	552	592
Diphtheria .....	1	1	1	0	5	4
Diarrhoea and Enteritis, under 1 yr. ....	15	5	8	16	36	40
Diphtheria Carriers .....	0	0	0	0	1	1
Dysentery—Amoebic .....	0	0	0	1	0	1
Dysentery—Bacillary .....	0	4	1	7	7	13
Erysipelas .....	4	1	7	7	8	23
Encephalitis .....	0	0	0	0	0	0
Influenza .....	203	402	29	25	694	63
Measles .....	456	373	218	60	1673	541
Measles—German .....	3	2	1	0	21	2
Meningococcal Meningitis .....	3	4	0	2	10	7
Mumps .....	175	173	32	31	690	138
Ophthalmia Neonatorum .....	0	0	0	0	1	0
Pneumonia—Lobar .....	41	32	21	30	114	69
Puerperal Fever .....	0	0	0	2	0	2
Scarlet Fever .....	83	101	33	41	358	167
Septic Sore Throat .....	3	1	3	4	9	16
Smallpox .....	0	0	0	0	0	0
Tetanus .....	0	0	0	0	0	0
Trachoma .....	0	0	0	0	0	0
Tuberculosis .....	67	54	85	85	211	260
Typhoid Fever .....	1	0	0	0	1	0
Typhoid Paratyphoid .....	0	0	0	0	0	0
Typhoid Carriers .....	0	0	0	0	0	1
Undulant Fever .....	1	1	6	3	3	9
Whooping Cough .....	38	39	23	17	142	66
Gonorrhoea .....	77	85	89	94	276	357
Syphilis .....	8	26	19	16	46	78

Four-Week Period March 25th to April 21st, 1951

## DEATHS FROM REPORTABLE DISEASES

For the Month of April, 1951

DISEASES (White Cases Only)	*779,000 Manitoba	*861,000 Saskatchewan	*3,825,000 Ontario	*2,952,000 Minnesota
Anterior Poliomyelitis .....	—	—	—	6
Chickenpox .....	118	62	1663	—
Diarrhoea and Enteritis, under 1 yr. ....	15	1	—	—
Diphtheria .....	1	—	2	6
Diphtheria Carriers .....	—	—	—	—
Dysentery—Amoebic .....	—	—	—	1
Dysentery—Bacillary .....	—	—	3	—
Encephalitis Epidemica .....	—	1	—	1
Erysipelas .....	4	3	5	—
Influenza .....	203	6	188	29
Jaundice, Infectious .....	—	—	8	—
Measles .....	456	32	3084	510
German Measles .....	3	29	721	—
Meningitis Meningococcal .....	3	2	8	9
Mumps .....	175	213	1284	—
Ophthalmia Neonatorum .....	—	—	—	—
Pneumonia, Lobar .....	41	—	—	—
Puerperal Fever .....	—	—	—	—
Scarlet Fever .....	83	47	199	115
Septic Sore Throat .....	3	1	3	20
Smallpox .....	—	—	—	—
Tetanus .....	—	—	—	—
Trachoma .....	—	—	—	—
Tuberculosis .....	67	22	126	145
Typhoid Fever .....	1	—	4	—
Typhoid Para-Typhoid .....	—	—	1	1
Typhoid Carrier .....	—	—	—	—
Undulant Fever .....	1	—	5	24
Whooping Cough .....	38	15	190	13
Gonorrhoea .....	81	—	168	—
Syphilis .....	12	—	76	—

\*Approximate population.

**Urban**—Cancer, 50; Influenza, 6; Acute infections encephalitis, 1; Measles, 2; Pneumonia, Lobar (490, 491, 493), 3; Pneumonia (Other Forms), 6; Tuberculosis, 5; Diarrhoea and Enteritis, 1. Other deaths under 1 year, 18. Other deaths over 1 year, 206. Stillbirths, 19. Total, 243.

**Rural**—Cancer, 30; Influenza, 4; Pneumonia, Lobar (490, 491, 493), 2; Pneumonia (Other Forms), 11; Pneumonia of Newborn, 1; Syphilis, 1; Tuberculosis, 3; Late effects of acute infectious encephalitis, 1; Diarrhoea and Enteritis, 1. Other deaths under 1 year, 16. Other deaths over 1 year, 174. Stillbirths, 10. Total, 200.

**Indians**—Influenza, 1; Pneumonia (Other Forms), 6; Pneumonia of Newborn, 2; Tuberculosis, 1; Diarrhoea and Enteritis, 1. Other deaths under 1 year, 2. Other deaths over 1 year, 2. Stillbirths, 2. Total, 6.

\*As reported to date.

## Comment

**Poliomyelitis**—When the Review reaches you it will be time to watch for the first few cases this year.

**Typhoid Fever**—One case reported by the City of Winnipeg, source not discovered as so often happens with single cases.

**International Certificate of Inoculation and Vaccination**—These little booklets are available from the Department of Health and Public Welfare and should be given to those who have been immunized before travelling to other countries. They are official and set down the information required in an orderly fashion. If you want one or more let us know at 320 Sherbrook Street. We can certify them if necessary after data is entered.



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## Coming Events

The Michael Reese Hospital Post-graduate School is offering a two-week course in "Diseases of the Endocrines — Physiology and Diagnostic Methods." This full-time intensive course will meet from July 9th to July 21st, 1951, and consists of a balanced programme of basic information and clinical applications. Dr. Rachmiel Levine, Director, Dept. of Metabolic and Endocrine Research, is co-ordinator of the course.

Also a full-time two-week intensive course in "Hematologic Diagnosis," under the direction of Dr. Karl Singer, will be presented from July 23rd to August 4th, 1951. This two-week course offers a review of the present status of hematology and instruction in actual reading of slides of normal and pathological specimens of peripheral blood and bone marrow. For further information, address: Dr. Samuel Soskin, Dean, 29th St. and Ellis Ave., Chicago 16, Ill.

Thank you for your co-operation in publicizing this information.

Sincerely yours,  
Shirley Winokur, Registrar.

Manitoba Medical Association—Annual Meeting, Fort Garry Hotel, Winnipeg, Man., October 9th, 10th, 11th and 12th.

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Fred Ruppel .....	422 769

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W. J. McGurran .....	208 231
E. R. Mitchell .....	402 132

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### Practice For Sale

Owing to the death of Dr. J. L. Wiseman, his medical practice and his interest in the lease for 206 Somerset Building, Winnipeg, Manitoba, is offered for sale by his administrator. For further information enquire from Sokolov & Wolinsky, Barristers, 408 Time Building.

### Municipal Doctor Wanted

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